PCA-6772

ISA VIA Half-sized CPU card with CPU, VGA/LCD, and 3 Ethernet

Users Manual

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This manual is for the PCA-6772.

Part No. 2006677210

1st Edition, Printed in Taiwan Oct, 2002

Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 1 PCA-6772 all-in-one single board computer
- 1 startup manual
- CD-ROM or disks for utility, drivers, and manual (in PDF format)
- 1 power cable p/n: 1703080101
- 1 PS/2 KB/M cable p/n: 1700060202
- 1 COM port cable p/n:1700100250
- 1 Printer cable p/n:1700260250
- 1 VGA cable p/n:1701160101
- 1 FDD cable p/n:1701340603
- 1 EIDE cable p/n:1701400452

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Model No. List	Description
PCA-6772F-Q3A1	Ezra 800 half-sized CPU card with VGA/ LCD/CFC/3 Ethernet
PCA-6772F-Q1A1	ISA Ezra 800 half-sized CPU card with VGA/LCD/CFC/1 Ethernet
PCA-6772F-J3A1	ISA Eden 400 half-sized CPU card with VGA/LCD/CFC/3 Ethernet
PCA-6772F-J1A1	ISA Eden 400 half-sized CPU card with VGA/LCD/CFC/1 Ethernet

Additional Information and Assistance

1. Visit the Advantech web site at **www.advantech.com** where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

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CHAPTER 1

General Information

This chapter gives background information on the PCA-6772.

Sections include:

- Introduction
- Features
- Specifications
- Board layout and dimensions

Chapter 1 Introduction

1.1 Introduction

Advantech's new PCA-6772 is a new half-sized CPU card with onboard VIA low power CPU, Eden400 or Ezra800. The VIA Eden processor uses advanced 0.13µ CMOS technology with 128KB L1 cache memory and 64KB L2 cache memory on die. This board with Eden400 CPU can operate without a fan at temperatures up to 60° C (140° F) and typically consumes under 14 Watts while supporting numerous peripherals. This SBC includes a 4X AGP controller, a PCI Ethernet interface, and 18-bit TTL interface. Its design is based on the half-sized CPU card and supports ISA bus expansion. Other on-board features include an FDD, LPT, 2 USBs, and 2 serial ports. The SSD solution supports CompactFlash. cards. With the optional PCM-231A-00A1, PCA-6772 can support AC97 Audio.

This product uses a VIA VT8606"TwisterT" chip with Integrated Savage4 2D/3D/Video Accelerator and supports 4X AGP VGA/LCD interface and up to 32 MB frame buffer using system memory. The PCA-6772 supports 3 10/100Mbps Ethernet connections with onboard RJ-45 connectors and is effective for use as a firewall, VPN, or gateway device.

1.2 Features

- Embedded low power VIA Ezra 800MHz or Eden 400 MHz processor
- ISA bus half-sized CPU card
- Fanless operation at 60oC. (PCA-6772F-J3A1, PCA-6772F-J1A1)
- All 3 onboard RJ-45 connectors support 10/100Base-T Ethernet (PCA-6772F-Q3A1, PCA-6772F-J3A1)
- 4X AGP graphics for high performance applications
- FSB 133MHz (Ezra800), FSB 100MHz (Eden400)

1.3 Specifications

1.3.1 Standard SBC Functions

- **CPU:** Embedded VIA low power Ezra/Eden processor
  Ezra-800 (PCA-6772F-Q3A1, PCA-6772F-Q1A1)
  Eden-400 (PCA-6772F-J3A1, PCA-6772F-J1A1)
- **System chipsets:** VIA VT8606"TwisterT"+VT82C686B
- **BIOS:** Award 256 KB Flash memory
- **System memory:** One DIMM socket accepts 64 MB up to 512 MB SDRAM
- **2nd cache memory:** 64KB on the Ezra/Eden processor
- **Enhanced IDE interface:** One channel supports up to two EIDE devices. BIOS auto-detect, PIO Mode 3 or Mode 4, up to UDMA66/100 mode.
- **FDD interface:** Supports up to two FDDs
- **Serial ports:** Two serial RS-232 ports
- **Parallel port:** Parallel port supports SPP/EPP/ECP mode
- **Keyboard/mouse connector:** Supports standard PC/AT keyboard and a PS/2 mouse
- **Power management:** Supports power saving modes including Normal/Standby/Suspend modes. APM 1.2 compliant
- **Watchdog timer:** 62 level timer intervals
- **USB:** Two universal serial bus ports

1.3.2 VGA/LCD Interface

- **Chipset:** VIA VT8606"TwisterT" chip with integrated Savage4 2D/3D/ Video Accelerator
- **Frame buffer:** Supports 8/16/32MB frame buffer with system memory
- **Interface:** 4X AGP VGA/LCD interface, Support for 9, 12, 15, 18 bit TFT
- **Display modes:**

  CRT Modes: 1280 x 1024@16bpp (60Hz),
  1024 x 768@16bpp (85Hz);
  LCD/Simultaneous Modes:
  800 x 600@18bpp (60Hz).
  640 x 480@18bpp (60Hz))

1.3.3 Solid State disk

- Supports **CompactFlash Type I/II** disks

1.3.4 PCI bus Ethernet interface

- **Chipset:** REALTEK RTL8139C plus Ethernet controller
- **Ethernet interface:** IEEE 802.3U compatible 10/100Base-T interface. Includes software drivers and boot ROM
- **Wake-on-LAN:** Supports wake-on-LAN function

1.3.5 Mechanical and Environmental

- **Dimensions (L x W):** 185 x 122 mm(7.28" x 4.80")
- **Power supply voltage:** +5 V, +12V ±5%
- **Power requirements:**

  Max:

  4.5 A @ +5 V, 0.5 A @+12 V

  Typical:

  3.3 A @ 5 V, (with 256 MB DRAM, Ezra 800 MHz CPU)
  2.78 A @ 5 V, (with 256 MB DRAM, Eden 400 MHz CPU)
- **Operating temperature:** 0 ~ 60°C (32 ~ 140°F)
- **Operating humidity:** 0% ~ 90% Relative Humidity, Non condensing
- **Weight:** 0.27 kg (weight of total package)

1.4 Board layout: dimensions

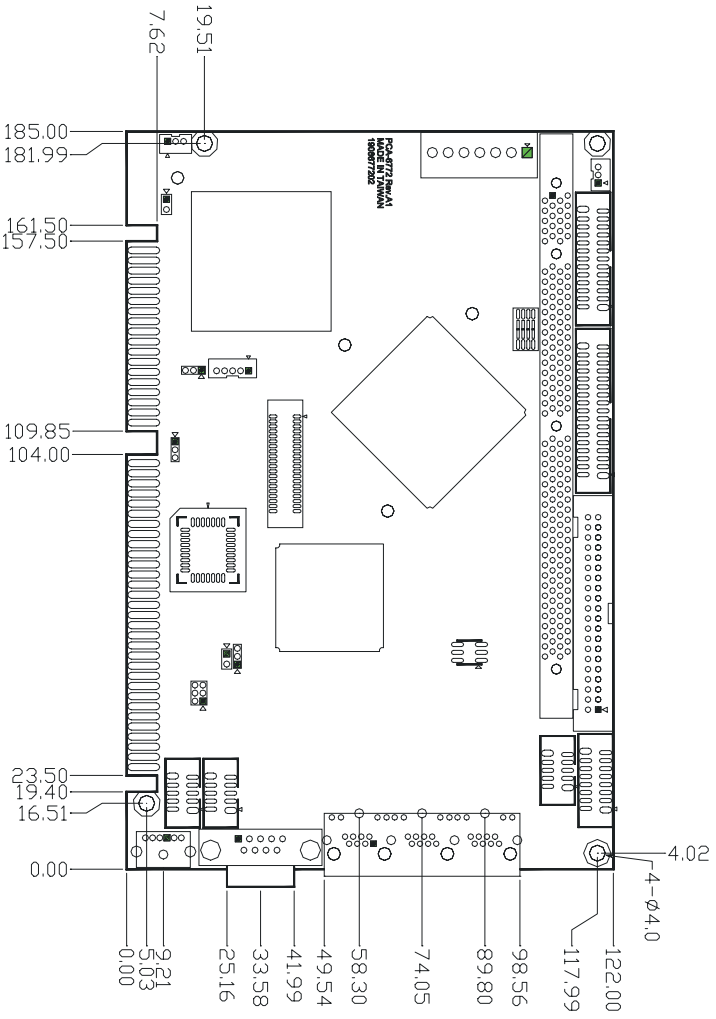


Figure 1.1: Board layout: dimensions (component side)

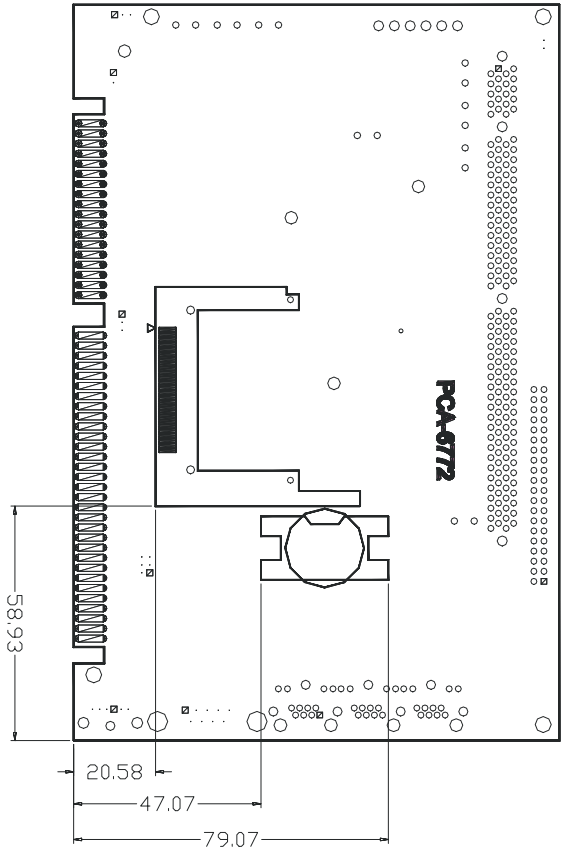


Figure 1.2: Board layout: dimensions (solder side)

CHAPTER 2

Installation

This chapter explains the setup procedures of PCA-6772 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all safety precautions before you begin the installation procedure.

Chapter 2 Installation

2.1 Jumpers

The PCA-6772 has a number of jumpers that allow you to configure your system to suit your application. The table below lists the functions of the various jumpers.

Table 2.1: Jumpers

Label	Function
JP1	CMOS clear
JP2	LAN Vcc select
JP3	Watch-Dog output select
S1	Panel type select

2.2 Connectors

On-board connectors link the PCA-6772 to external devices such as hard disk drives, a keyboard, or floppy drives. The table below lists the function of each of the board's connectors.

Table 2.2: Connectors

Label	Function
CN1	ATX power control connector
CN2	Printer port connector
CN3	FDD connector
CN4	Primary IDE connector
CN5	CRT display connector
CN6	USB connectors
CN7	LAN1, LAN2, LAN3 RJ45 connector
CN8	Main power connector
CN9	Power and HDD LED connector
CN12	Flat panel display connector
CN13	COM port connector
CN14	Panel back-light power connector
CN15	ATX soft power switch connector
CN16	COM port connector
CN17	Panel back-light VR connector
CN19	Reset switch connector
CN20	Keyboard and PS/2 mouse connector
Fan1	CPU fan power connector

2.3 Locating jumpers

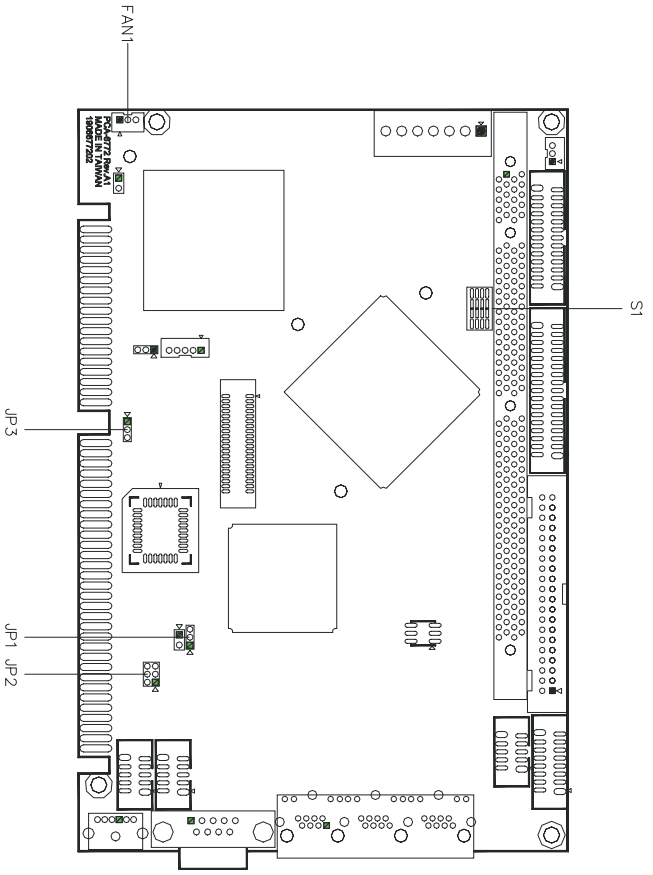


Figure 2.1: Jumper locations

2.4 Locating Connectors

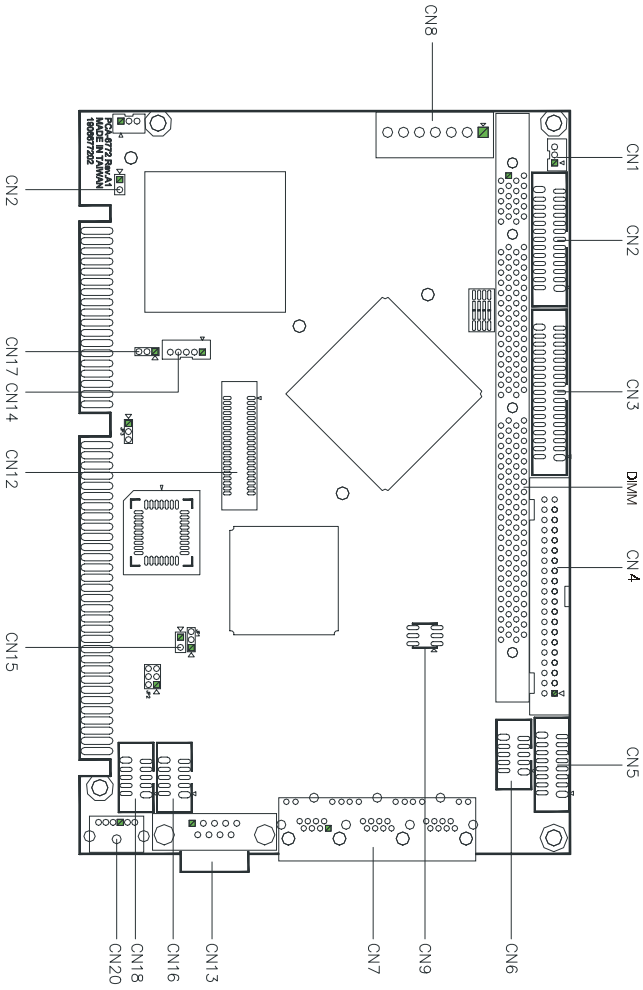
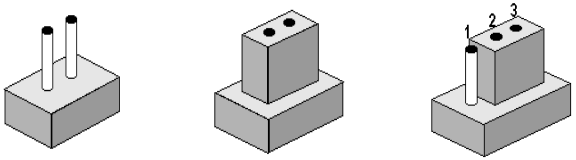


Figure 2.2: Connectors (component side)

2.5 Setting Jumpers

You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper, you connect the pins with the clip. To "open" a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



open closed closed 2-3

The jumper settings are schematically depicted in this manual as follows:.

open closed closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Generally, you simply need a standard cable to make most connections.

2.6 Clear CMOS (JP1)

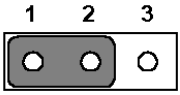
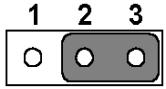
Warning! *To avoid damaging the computer, always turn off the power supply before setting "Clear CMOS." Before turning on the power supply, set the jumper back to "3.0 V Battery On."*

This jumper is used to erase CMOS data and reset system BIOS information.

The procedure for clearing CMOS is:

1. Turn off the system.
2. Short pin 2 and pin 3.
3. Return jumper to pins 1 and 2.
4. Turn on the system. The BIOS is now reset to its default setting

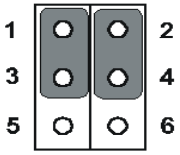
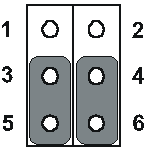
Table 2.3: CMOS clear (JP1)

*3.0 V normal	clear CMOS
	

* default setting

2.7 LAN Vcc select (JP2)

Table 2.4: LAN Vcc select (JP2)

Normal power*	WOL power
	

* default setting

Note: PCA-6772 supports Wake-on-LAN. For Wake-on LAN, JP2 has to be set to the WOL power position

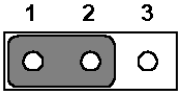
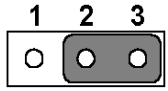
2.8 Watchdog timer configuration

An on-board watchdog timer reduces the chance of disruptions which EMP (electro-magnetic pulse) interference can cause. This is an invaluable protective device for standalone or unmanned applications. Setup involves one jumper and running the control software (refer to Appendix A).

2.8.1 Watchdog timer action (JP3)

When the watchdog timer activates (CPU processing has come to a halt), it can reset the system or generate an interrupt on IRQ11. This can be set via setting JP3 as shown below:

Table 2.5: Watchdog timer action (JP3)

*System reset	IRQ 11
	

* default setting

2.9 Installing DIMMs

The procedure for installing DIMMs is described below. Please follow these steps carefully. The number of pins are different on either side of the breaks, so the module can only fit in one way. DIMM modules have different pin contacts on each side, and therefore have a higher pin density.

1. Make sure that the two handles of the DIMM socket are in the "open" position. i.e. The handles remain leaning outward.
2. Slowly slide the DIMM module along the plastic guides on both ends of the socket.
3. Press the DIMM module right down into the socket, until you hear a click. This is when the two handles have automatically locked the memory module into the correct position of the socket.

To **remove** the memory module, just push both handles outward, and the module will be ejected from the socket.

2.10 ATX power control connector (CN1,CN15)

2.10.1 ATX feature connector (CN1) and soft power switch connector (CN15)

The PCA-6772 can support an advanced soft power switch function, if an ATX power supply is used. To enable the soft power switch function:

1. Get the specially designed ATX-to-EBX power cable (PCA-6772 optional item, part no. 1703200100)
2. Connect the 3-pin plug of the cable to CN1 (ATX feature connector).
3. Connect the power on/off button to CN15. (A momentary type of button should be used.)

Important *Make sure that the ATX power supply can take at least a 10 mA load on the 5 V standby lead (5VSB). If not, you may have difficulty powering on your system.*

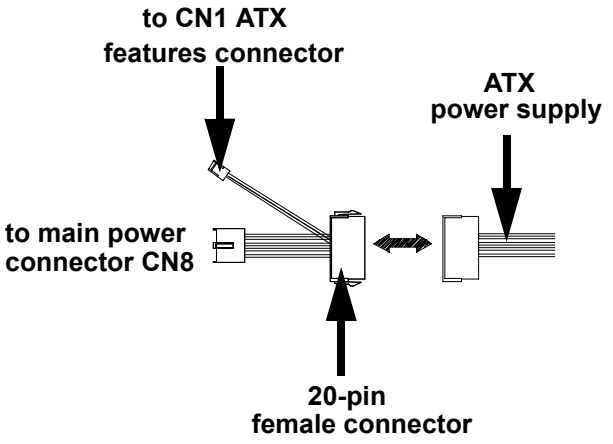


Figure 2.3: Wiring for ATX soft power switch function

2.11 Printer port connector (CN2)

Normally, the parallel port is used to connect the card to a printer. The PCA-6772 includes a multi-mode (ECP/EPP/SPP) parallel port accessed via CN2 and a 26-pin flat-cable connector. You will need an adapter cable if you use a traditional DB-25 connector. The adapter cable has a 26-pin connector on one end, and a DB-25 connector on the other.

The parallel port is designated as LPT1, and can be disabled or changed to LPT2 or LPT3 in the system BIOS setup.

The parallel port interrupt channel is designated to be IRQ7.

You can select ECP/EPP DMA channel via BIOS setup.

2.12 Floppy drive connector (CN3)

You can attach up to two floppy drives to the PCA-6772's on-board controller. You can use any combination of 5.25" (360 KB and 1.2 MB) and/or 3.5" (720 KB, 1.44 MB, and 2.88 MB) drives.

A 34-pin daisy-chain drive connector cable is required for a dual-drive system. On one end of the cable is a 34-pin flat-cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3.5" drives) and a printed-circuit board connector (usually used for 5.25" drives).

2.12.1 Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN3. Make sure that the red wire corresponds to pin one on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to the A: drive. The set in the middle connects to the B: drive.
3. If you are connecting a 5.25" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3.5" floppy drive, you may have trouble determining which pin is number one. Look for a number printed on the circuit board indicating pin number one. In addition, the connector on the floppy drive may have a slot. When the slot is up, pin number one should be on the right. Check the documentation that came with the drive for more information.

If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

In case you need to make your own cable, you can find the pin assignments for the board's connector in Appendix C.

2.13 Primary IDE connector(CN4)

The PCA-6772 provides an IDE channel to which you can attach up to two Enhanced Integrated Device Electronics hard disk drives or CDROM to the PCA-6772's internal controller. The PCA-6772's IDE controller uses a PCI interface. This advanced IDE controller supports faster data transfer, PIO Mode 3 or Mode 4, UDMA 33/66/100 mode.

2.13.1 Connecting the hard drive

Connecting drives is done in a daisy-chain fashion. It requires one of two cables (not included in this package), depending on the drive size. 1.8" and 2.5" drives need a 1 x 44-pin to 2 x 44-pin flat-cable connector. 3.5" drives use a 1 x 44-pin to 2 x 40-pin connector.

Wire number 1 on the cable is red or blue, and the other wires are gray.

1. Connect one end of the cable to CN4. Make sure that the red (or blue) wire corresponds to pin 1 on the connector, which is labeled on the board (on the right side).
2. Plug the other end of the cable into the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drive. (See your hard drive's documentation for the location of the connector.)

If desired, connect a second drive as described above.

Unlike floppy drives, IDE hard drives can connect to either end of the cable. If you install two drives, you will need to set one as the master and one as the slave by using jumpers on the drives. If you install only one drive, set it as the master.

2.14 VGA/LCD interface connections

The PCA-6772's display interface can drive conventional CRT displays and is capable of driving a wide range of flat panel displays as well, including passive LCD and active LCD displays. The board has two display connectors: one for standard CRT VGA monitors, and one for flat panel displays.

2.14.1 CRT display connector (CN5)

CN5 is a 16-pin, dual-inline header used for conventional CRT displays. A simple one-to-one adapter can be used to match CN5 to a standard 15-pin D-SUB connector commonly used for VGA.

Pin assignments for CRT display connector CN5 are detailed in Appendix C.

2.14.2 Flat panel display connector (CN12)

CN12 consists of a 40-pin connector which can support an 18-bit LCD panel. It is Hirose's product no. DF13A-40DP-1.25 V

The PCA-6772 provides a bias control signal on CN12 that can be used to control the LCD bias voltage. It is recommended that the LCD bias voltage not be applied to the panel until the logic supply voltage (+5 V or +3.3 V) and panel video signals are stable. Under normal operation, the control signal (ENAVEE) is active high. When the PCA-6772's power is applied, the control signal is low until just after the relevant flat panel signals are present. CN12 can connect up to 18 bit TFT LCD.

2.14.3 Panel type selection (S1)

S1 is an 8 segment DIP switch for DSTN/TFT panel type and resolution functions.

Table 2.6: S1 Panel Type select

SW 1-1	SW 1-2	SW 1-3	SW 1-4	Panel Type & Resolution		
ON	ON	ON	ON	TFT	640x480**	18bit (H. V. Freq)
ON	ON	ON	OFF	TFT	648x480	18bit (Synthetic)
ON	ON	OFF	ON	TFT	648x480**	N/A
ON	ON	OFF	OFF	TFT	648x480**	LVDS
ON	OFF	ON	ON	DSTN	648x480**	18bit
ON	OFF	ON	OFF	TFT	800x600**	18bit (H. V. Freq)
ON	OFF	OFF	ON	TFT	800x600	18bit (Synthetic)
ON	OFF	OFF	OFF	TFT	800x600**	LVDS
OFF	ON	ON	ON	TFT	800x600**	N/A
OFF	ON	ON	OFF	DSTN	800x600**	18bit
OFF	ON	OFF	ON	TFT	1024x768**	36bit (H. V. Freq)
OFF	ON	OFF	OFF	TFT	1024x768**	36bit (Synthetic)
OFF	OFF	ON	ON	TFT	1024x768**	LVDS
OFF	OFF	ON	OFF	TFT	1024x768**	N/A
OFF	OFF	OFF	ON	DSTN	1024x768**	18bit
OFF	OFF	OFF	OFF	DSTN	1024x768**	24bit

* Default setting

** will support in the future

2.15 USB connectors (CN6)

The PCA-6772 board provides up to two USB (Universal Serial Bus) ports. This gives complete Plug and Play, and hot attach/detach for up to **127** external devices. The USB interfaces comply with USB specification Rev. 1.1, and are fuse protected.

The USB interface is accessed through the 5 x 2-pin flat-cable connector, CN6 (USB1, 2). You will need an adapter cable if you use a standard

USB connector. The adapter cable has a 5 x 2-pin connector on one end and a USB connector on the other.

The USB interfaces can be disabled in the system BIOS setup.

2.16 Ethernet configuration

The PCA-6772 is equipped with a high performance 32-bit PCI-bus Ethernet interface which is fully compliant with IEEE 802.3U 10/100Mbps CSMA/CD standards. It is supported by all major network operating systems.

The PCA-6772 supports 3 10/100Mbps Ethernet connections with onboard RJ-45 connectors(CN7) and is effective for use as a firewall, VPN, or gateway device.

The medium type can be configured via the RSET8139.EXE program included on the utility disk. (See Chapter 3 for detailed information.)

2.16.1 100Base-T connector (CN7)

10/100Base-T connects to the PCA-6772 via an adapter cable to an 8-pin polarized header (CN7).

2.16.2 Network boot

The Network Boot feature can be utilized by incorporating the Boot ROM image files for the appropriate network operating system. The Boot ROM BIOS files are included in the system BIOS, which is on the utility CD disc.

2.17 Power connectors (CN8, FAN1)

2.17.1 Main power connector, +5 V, +12 V (CN8)

Supplies main power to the PCA-6772 (+5 V), and to devices that require +12 V.

2.17.2 CPU Fan power supply connector (FAN1)

Provides power supply to CPU cooling fan. Only present when +5 V and +12 V power is supplied to the board.

2.18 Power & HDD LED, Reset Button Connector (CN9, CN19)

Next, you may want to install external switches to monitor and control the PCA-6772. These features are optional: install them only if you need

them. The front panel connector (CN9) is an 6-pin male, dual in-line header. It provides connections for a speaker, hard disk access indicator, watchdog output, and an input switch for resetting the card.

2.18.1 Power & HDD LED (CN9)

The HDD LED indicator for hard disk access is an active low signal (24 mA sink rate). Power supply activity LED indicator.

2.18.2 Reset switch (CN19)

If you install a reset switch, it should be an open single pole switch. Momentarily pressing the switch will activate a reset. The switch should be rated for 10 mA, 5 V.

2.19 COM port connector (CN13,CN16)

The PCA-6772 provides two serial ports (COM1: RS-232 and COM2: RS232) in one COM port connector. It provides connections for serial devices (a mouse, etc.) or a communication network. You can find the pin assignments for the COM port connector in Appendix C.

2.20 Keyboard and PS/2 mouse connector (CN20)

The PCA-6772 board provides a keyboard connector that supports both a keyboard and a PS/2 style mouse. In most cases, especially in embedded applications, a keyboard is not used. If the keyboard is not present, the standard PC/AT BIOS will report an error or fail during power-on self-test (POST) after a reset. The PCA-6772's BIOS standard setup menu allows you to select "All, But Keyboard" under the "Halt On" selection. This allows no-keyboard operation in embedded system applications, without the system halting under POST.

2.21 Audio AC97 interface (CN18)

2.21.1 Audio connector (CN18)

The Audio AC97 link is a 10 pin connector; the PCA-6772 can support AC97 Audio with the addition of optional PCM-231A-00A1.

CHAPTER 3

Software Configuration

This chapter details the software configuration information. It shows you how to configure the card to match your application requirements. The AWARD System BIOS is covered in Chapter 4.

Sections include:

- Introduction
- Connections for standard LCDs
- Ethernet interface configuration.

Chapter 3 Software Configuration

3.1 Introduction

The PCA-6772 system BIOS and custom drivers are located in a 256 Kbyte, Flash ROM device, designated U18. A single Flash chip holds the system BIOS, VGA BIOS and network Boot ROM image. The display can be configured via CMOS settings. This method minimizes the number of chips and difficulty of configuration. To set different types of LCD panels, please choose “panel type” from the “integrated peripherals” menu in CMOS setup.

3.2 Connections to Two Standard LCDs

The following tables illustrate typical LCD connection pinouts for the PCA-6772.

3.2.1 Connections to Toshiba LTM10C209A (640 x 480 TFT color LCD)

Table 3.1: Connections to Toshiba LTM10C209A

LTM10C209A		PCA-6772 CN12	
Pin	**Name**	**Pin**	**Name**
1	GND	3	GND
2	CLK	35	SHFCLK
3	GND	34	GND
4	R0	27	P18
5	R1	28	P19
6	R2	29	P20
7	GND	33	GND
8	R3	30	P21
9	R4	31	P22
10	R5	32	P23
11	GND	34	GND
12	G0	19	P10
13	G1	20	P11
14	G2	21	P12
15	GND	8	GND
16	G3	22	P13
17	G4	23	P14
18	G5	24	P15
19	GND	8	GND
20	ENAB	37	M/DE
21	GND	4	GND
22	B0	11	P2
23	B1	12	P3
24	B2	13	P4
25	GND	4	GND
26	B3	14	P5
27	B4	15	P6

Table 3.1: Connections to Toshiba LTM10C209A			
28	B5	16	P7
29	GND	3	GND
30	VDD	1	+5 V
31	VDD	2	+5 V

3.2.2 Connections to Toshiba LTM12C275A (800 x 600 TFT color LCD)

Table 3.2: Connections to Toshiba LTM12C275A

LTM12C275A		PCA-6772 CN12	
Pin	**Name**	**Pin**	**Name**
1	GND	3	GND
2	NCLK	35	SHFCLK
3	NC	-	NC
4	NC	-	NC
5	GND	4	GND
6	R0	27	P18
7	R1	28	P19
8	R2	29	P20
9	R3	30	P21
10	R4	31	P22
11	R5	32	P23
12	GND	8	GND
13	G0	19	P10
14	G1	20	P11
15	G2	21	P12
16	G3	22	P13
17	G4	23	P14
18	G5	24	P15
19	GND	33	GND
20	B0	11	P2
21	B1	12	P3
22	B2	13	P4
23	B3	14	P5
24	B4	15	P6
25	B5	16	P7
26	ENAB	37	M/DE
27	GND	34	GND
28	VCC	5	+5 V
29	VCC	6	+5 V
30	GND	39	GND

3.3 Ethernet software configuration

The PCA-6772's on-board Ethernet interface supports all major network operating systems. To configure the medium type, to view the current configuration, or to run diagnostics, do the following:

1. Power the PCA-6772 on. Make sure that the RSET8139.EXE file is located in the working drive.
2. At the prompt, type RSET8139.EXE and press <Enter>. The Ethernet configuration program will then be displayed.
3. This simple screen shows all the available options for the Ethernet interface. Just highlight the option you wish to change by using the Up and Down keys. To change a selected item, press <Enter>, and a screen will appear with the available options. Highlight your option and press <Enter>. Each highlighted option has a helpful message guide displayed at the bottom of the screen for additional information.
4. After you have made your selections and are sure this is the configuration you want, press ESC. A prompt will appear asking if you want to save the configuration. Press Y if you want to save.

The Ethernet Setup Menu also offers three very useful diagnostic functions. These are:

1. Run EEPROM Test.
2. Run Diagnostics on Board.
3. Run Diagnostics on Network.

Each option has its own display screen that shows the format and result of any diagnostic tests undertaken.

Note *For Ethernet installation, please see Chapter 7*

CHAPTER 4

Award BIOS Setup

This chapter describes how to set BIOS configuration data.

Chapter 4 Award BIOS Setup

4.1 System test and initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

```
press <F1> to RESUME
```

Write down the message and press the F1 key to continue the bootup sequence.

4.1.1 System configuration verification

These routines check the current system configuration against the values stored in the board's CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The PCA-6772 Series' CMOS memory has an integral lithium battery backup. The battery backup should last ten years in normal service, but when it finally runs down, you will need to replace the complete unit.

4.2 Award BIOS setup

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

4.2.1 Entering setup

Power on the computer and press <Del> immediately. This will allow you to enter Setup.

Figure 4.1: BIOS setup program initial screen

4.2.2 Standard CMOS Features setup

When you choose the Standard CMOS Features option from the Initial Setup Screen menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

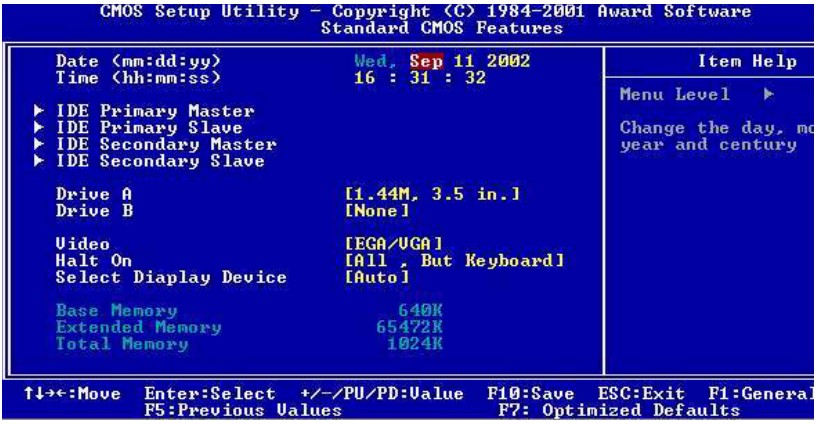

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Standard CMOS Features
Date (mm:dd:yy) Wed, Sep 11 2002
Time (hh:mm:ss) 16 : 31 : 32
IDE Primary Master
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave
Drive A [1.44M, 3.5 in.]
Drive B [None]
Video [EGA/VGA]
Halt On [All , But Keyboard]
Select Diaplay Device [Auto]
Base Memory 640K
Extended Memory 65472K
Total Memory 1024K
Item Help
Menu Level
Change the day, mo
year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General
F5:Previous Values F7: Optimized Defaults

Figure 4.2: CMOS Features setup

4.2.3 Advanced BIOS Features setup

By choosing the Advanced BIOS Features Setup option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCA-6772 Series.

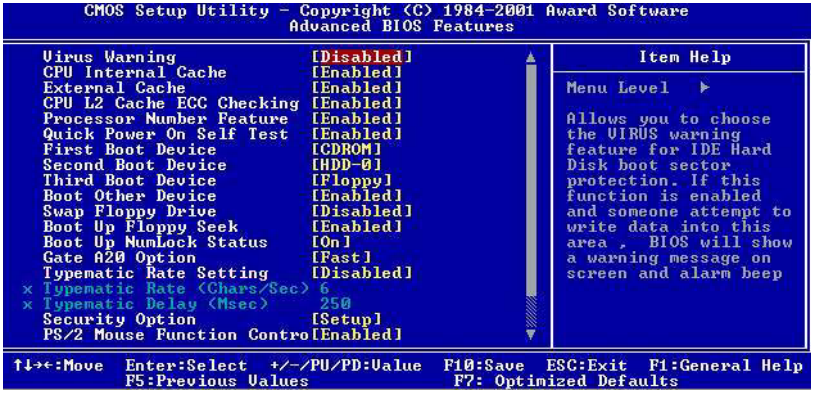

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Advanced BIOS Features
Virus Warning [Disabled]
CPU Internal Cache [Enabled]
External Cache [Enabled]
CPU L2 Cache ECC Checking [Enabled]
Processor Number Feature [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [CDROM]
Second Boot Device [HDD-0]
Third Boot Device [Floppy]
Boot Other Device [Enabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Enabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
PS/2 Mouse Function Contro [Enabled]
Item Help
Menu Level ▶
Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Figure 4.3: Advanced BIOS Features setup

4.2.4 Advanced Chipset Features setup

By choosing the Advanced Chipset Features option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCA-6772 Series.

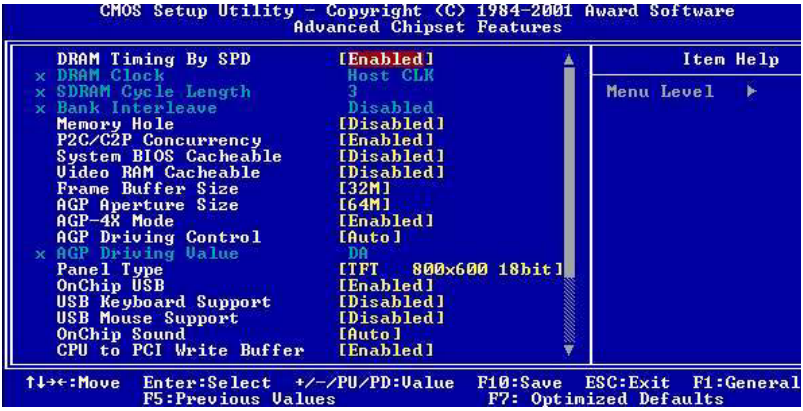

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Advanced Chipset Features
DRAM Timing By SPD [Enabled]
x DRAM Clock Host CLK
x SDRAM Cycle Length 3
x Bank Interleave Disabled
Memory Hole [Disabled]
P2C/C2P Concurrency [Enabled]
System BIOS Cacheable [Disabled]
Video RAM Cacheable [Disabled]
Frame Buffer Size [32M]
AGP Aperture Size [64M]
AGP-4X Mode [Enabled]
AGP Driving Control [Auto]
x AGP Driving Value DA
Panel Type [TFT 800x600 18bit]
OnChip USB [Enabled]
USB Keyboard Support [Disabled]
USB Mouse Support [Disabled]
OnChip Sound [Auto]
CPU to PCI Write Buffer [Enabled]
Item Help
Menu Level
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General
F5:Previous Values F7: Optimized Defaults

Figure 4.4: Advanced Chipset Features setup

4.2.5 Integrated Peripherals

Choosing the Integrated Peripherals option from the Initial Setup Screen menu should produce the screen below. Here we see the manufacturer's default values for the PCA-6772 Series.

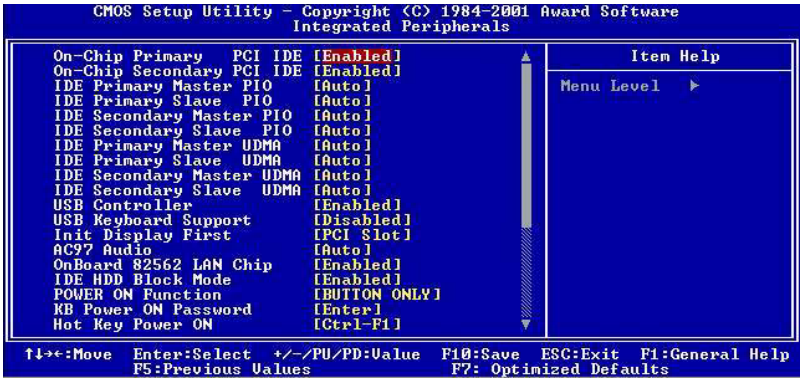

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Integrated Peripherals
On-Chip Primary PCI IDE [Enabled]
On-Chip Secondary PCI IDE [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Primary Master UDMA [Auto]
IDE Primary Slave UDMA [Auto]
IDE Secondary Master UDMA [Auto]
IDE Secondary Slave UDMA [Auto]
USB Controller [Enabled]
USB Keyboard Support [Disabled]
Init Display First [PCI Slot]
AC97 Audio [Auto]
OnBoard 82562 LAN Chip [Enabled]
IDE HDD Block Mode [Enabled]
POWER ON Function [BUTTON ONLY]
KB Power ON Password [Enter]
Hot Key Power ON [Ctrl-F1]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Figure 4.5: Integrated Peripherals

4.2.6 Power Management Setup

By choosing the Power Management Setup option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCA-6772 Series.

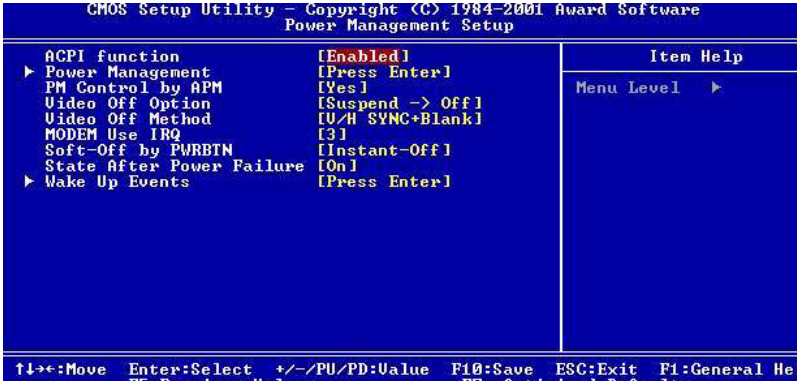

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Power Management Setup
ACPI function [Enabled]
▶ Power Management [Press Enter]
PM Control by APM [Yes]
Video Off Option [Suspend -> Off]
Video Off Method [V/H SYNC+Blank]
MODEM Use IRQ [3]
Soft-Off by PWRBTN [Instant-Off]
State After Power Failure [On]
▶ Wake Up Events [Press Enter]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General He

Figure 4.6: Power Management Setup

4.2.7 PnP/PCI Configurations

By choosing the PnP/PCI Configurations option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCA-6772 Series.

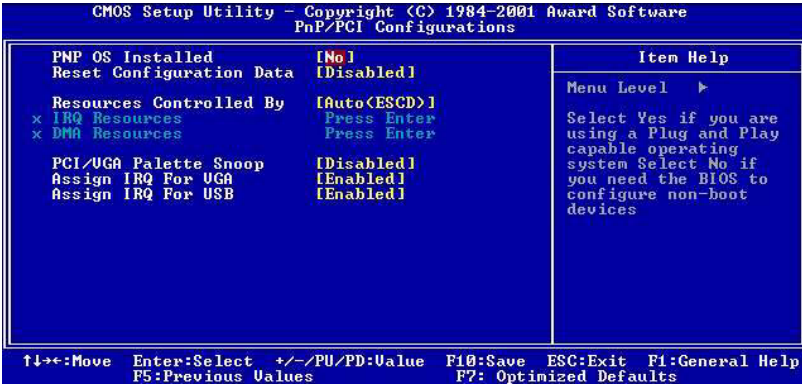

CMOS Setup Utility – Copyright (C) 1984-2001 Award Software
PnP/PCI Configurations
PNP OS Installed [No]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources Press Enter
x DMA Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
Assign IRQ For VGA [Enabled]
Assign IRQ For USB [Enabled]
Item Help
Menu Level ▶
Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Figure 4.7: PnP/PCI Configurations

4.2.8 PC Health Status

The PC Health Status option displays information such as CPU and motherboard temperatures, fan speeds, and core voltage.

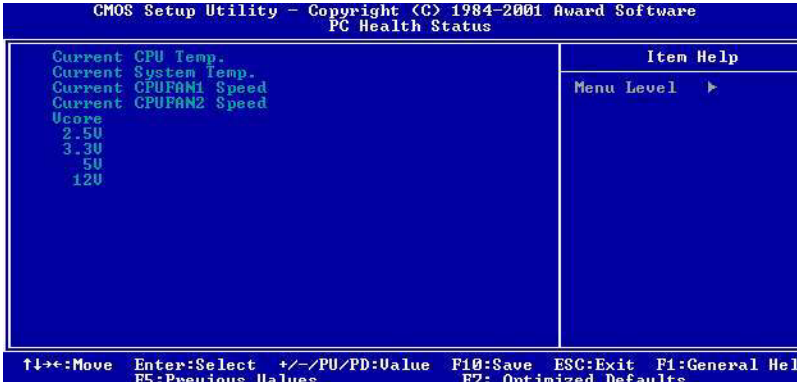


Figure 4.8: PC Health Status

4.2.9 Frequency/Voltage Control

By choosing the Frequency/Voltage Control option from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the PCA-6772

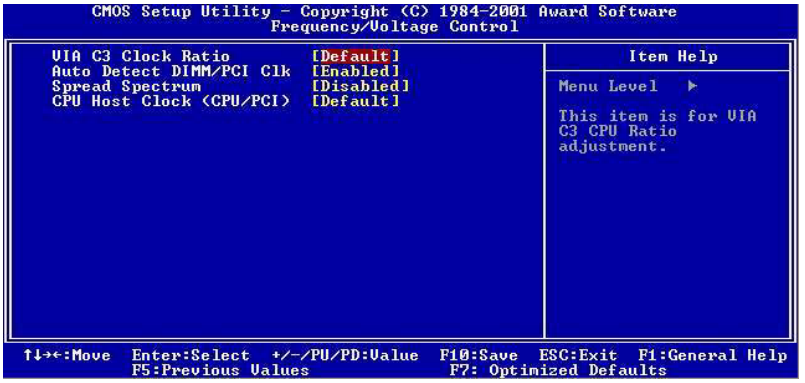

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Frequency/Voltage Control
VIA C3 Clock Ratio [Default]
Auto Detect DIMM/PCI Clk [Enabled]
Spread Spectrum [Disabled]
CPU Host Clock (CPU/PCI) [Default]
Item Help
Menu Level ▶
This item is for VIA C3 CPU Ratio adjustment.
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Figure 4.9: Frequency/Voltage Control

Caution *Incorrect settings in Frequency/Voltage Control may damage the system CPU, video adapter, or other hardware.*

4.2.10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from ROM. If the stored record created by the Setup program should ever become corrupted (and therefore unusable), these defaults will load automatically when you turn the PCA-6772 Series system on.

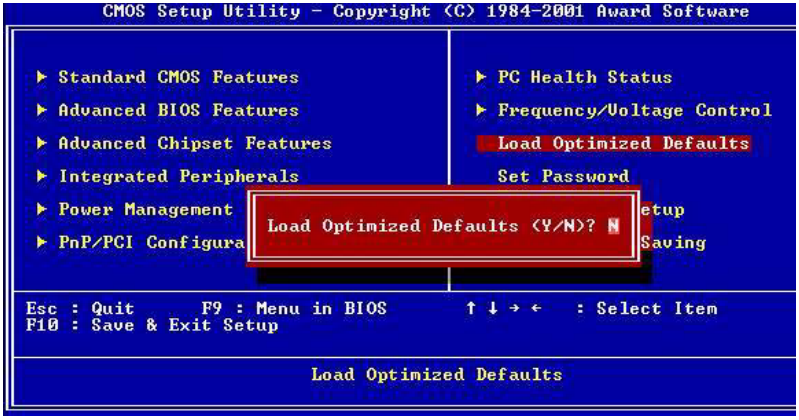


Figure 4.10: Load BIOS defaults screen

4.2.11 Set Password

Note *To enable this feature, you should first go to the Advanced BIOS Features menu, choose the Security Option, and select either Setup or System, depending on which aspect you want password protected. Setup requires a password only to enter Setup. System requires the password either to enter Setup or to boot the system.*

A password may be at most 8 characters long.

To Establish Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see "Enter Password," enter the desired password and press <Enter>.

3. At the “Confirm Password” prompt, retype the desired password, then press <Enter>.
4. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

To Change Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see “Enter Password,” enter the existing password and press <Enter>.
3. You will see “Confirm Password.” Type it again, and press <Enter>.
4. Select Set Password again, and at the “Enter Password” prompt, enter the new password and press <Enter>.
5. At the “Confirm Password” prompt, retype the new password, and press <Enter>.
6. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

To Disable Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see “Enter Password,” enter the existing password and press <Enter>.
3. You will see “Confirm Password.” Type it again, and press <Enter>.
4. Select Set Password again, and at the “Enter Password” prompt, don’t enter anything; just press <Enter>.
5. At the “Confirm Password” prompt, again don’t type in anything; just press <Enter>.
6. Select Save to CMOS and EXIT, type <Y>, then <Enter>.

4.2.12 Save & Exit Setup

If you select this option and press <Y> then <Enter>, the values entered in the setup utilities will be recorded in the chipset’s CMOS memory. The microprocessor will check this every time you turn your system on and use the settings to configure the system. This record is required for the system to operate.

4.2.13 Exit Without Saving

Selecting this option and pressing <Enter> lets you exit the Setup program without recording any new values or changing old ones.

CHAPTER 5

PCI SVGA Setup

- Introduction
- Installation of SVGA drivers
  - -for Windows 95/98/Me
  - -for Windows NT/2000/XP
- Further information

Chapter 5 PCI SVGA Setup

5.1 Introduction

The PCA-6772 has an onboard AGP flat panel/VGA interface. The specifications and features are described as follows:

5.1.1 Chipset

The PCA-6772 uses a VIA Twister 8606T chipset from VIA Technology Inc. for its AGP/SVGA controller. It supports many popular LCD, and LVDS LCD displays and conventional analog CRT monitors. The VIA8606T VGA BIOS supports color TFT and LCD flat panel displays. In addition, it also supports interlaced and non-interlaced analog monitors (color and monochrome VGA) in high-resolution modes while maintaining complete IBM VGA compatibility. Digital monitors (i.e. MDA, CGA, and EGA) are NOT supported. Multiple frequency (multisync) monitors are handled as if they were analog monitors.

5.1.2 Display memory

The Twister chip can support 8/16/32MB frame buffer shared with system memory; the VGA controller can drive CRT displays or color panel displays with resolutions up to 1280 x 1024 at 16 M colors.

5.1.3 Display types

CRT and panel displays can be used simultaneously. The PCA-6772 can be set in one of three configurations: on a CRT, on a flat panel display, or on both simultaneously. The system is initially set to simultaneous display mode. If you want to enable the CRT display only or the flat panel display only, please contact VIA Technology Inc., or our sales representative for detailed information.

5.1.4 Dual/Simultaneous Display

The PCA-6772 uses a VIA Twister VT8606T LCD controller that is capable of providing simultaneous dual view display of the same content on a flat panel and CRT.

To set up dual view (simultaneous mode) under Windows 9x, Windows ME, Windows NT/2000/XP, follow these steps:

Step 1. Open the Control panel, and select “Display”, “Settings”.

Step 2. Select " CRT+LCD " or " CRT+TV " for dual view

Step 3. Click “OK”.

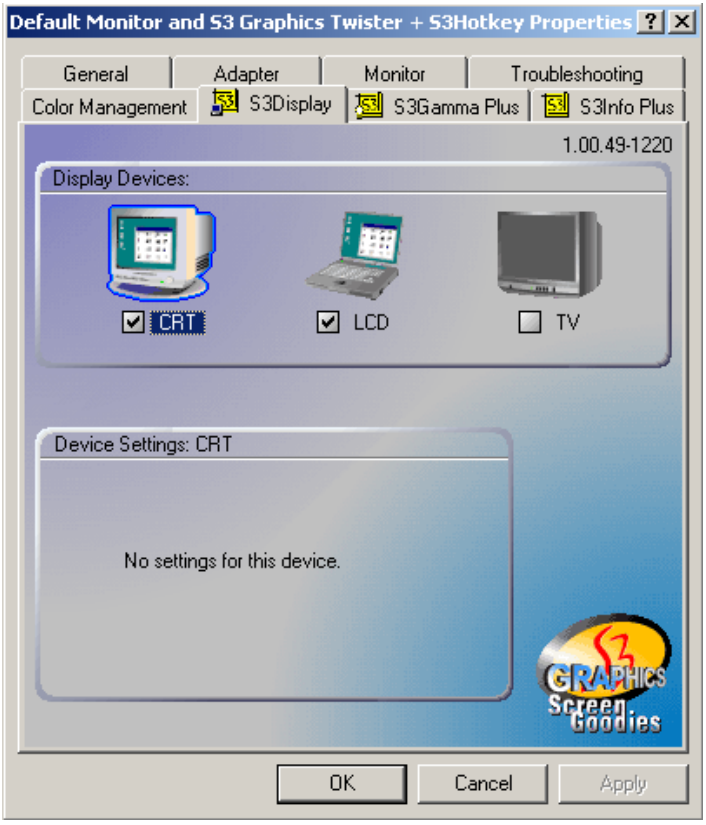


Figure 5.1: Selecting Display Settings

5.2 Installation of the SVGA Driver

Complete the following steps to install the SVGA driver. Follow the procedures in the flow chart that apply to the operating system that you are using within your PCA-6772.

Notes:

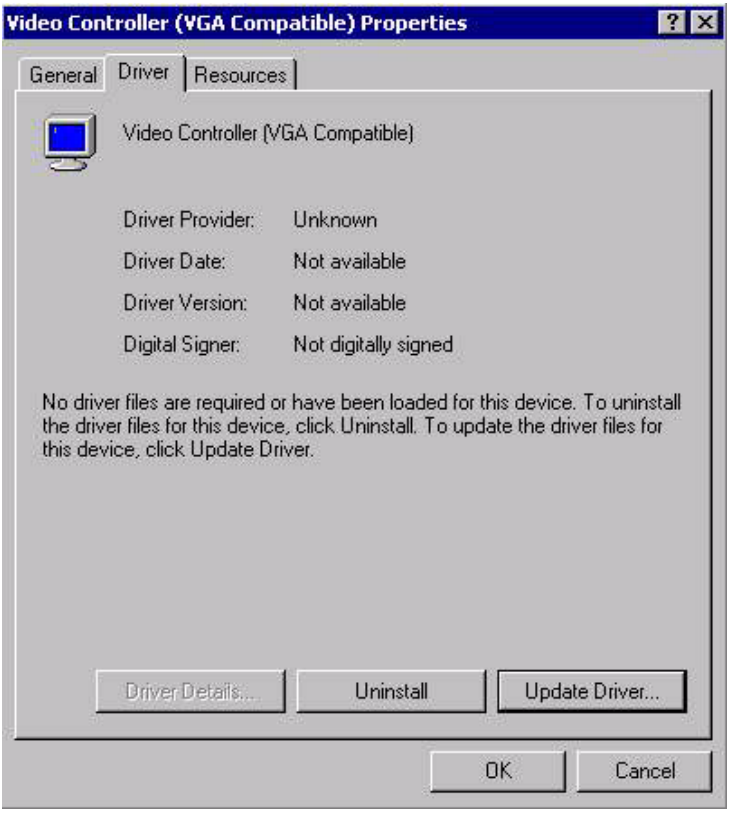
1. The windows illustrations in this chapter are intended as examples only. Please follow the listed steps, and pay attention to the instructions which appear on your screen.

2. For convenience, the CD-ROM drive is designated as "E" throughout this chapter.

5.2.1 Installation for Windows 2000

Step 1. Select “Start” > “Settings” > “Control Panel” > “System” > “Hardware” > “Device Manager.” Right click “Video Controller (VGA Compatible),” and choose “Properties.”

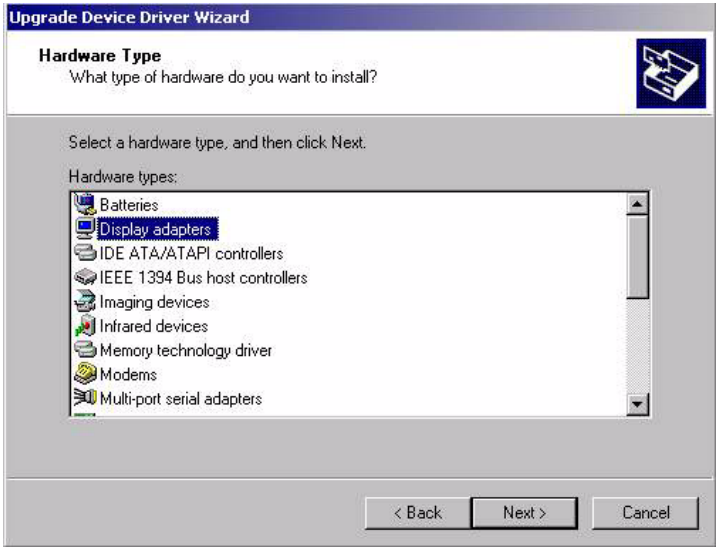
Step 2. Choose the “Driver” tab; press “Update Driver...” button.


Video Controller (VGA Compatible) Properties
General
Driver
Resources
Video Controller (VGA Compatible)
Driver Provider: Unknown
Driver Date: Not available
Driver Version: Not available
Digital Signer: Not digitally signed
No driver files are required or have been loaded for this device. To uninstall the driver files for this device, click Uninstall. To update the driver files for this device, click Update Driver.
Driver Details...
Uninstall
Update Driver...
OK
Cancel

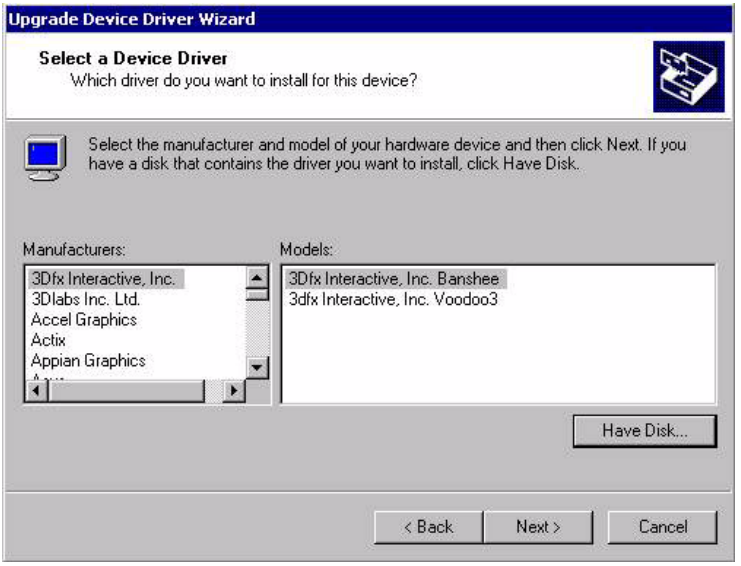
Step 3. Choose “Display a list of...,” then press “Next” button.

Upgrade Device Driver Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard upgrades drivers for the following hardware device:
Video Controller (VGA Compatible)
Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

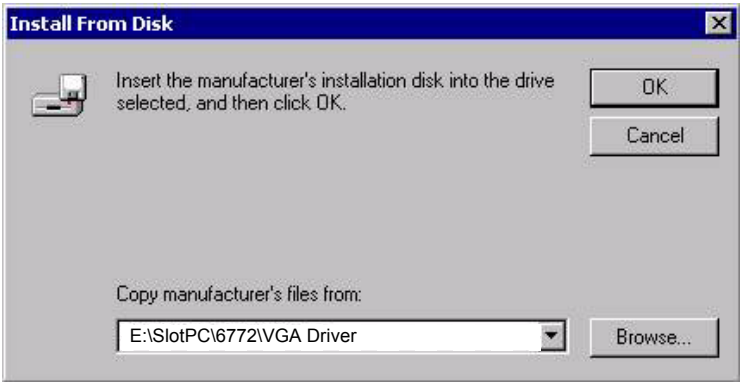
Step 4. Choose “Display adapters;” press “Next” button.



Step 5. Click the “Have Disk” button.


Upgrade Device Driver Wizard
Select a Device Driver
Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturers:
3Dfx Interactive, Inc.
3Dlabs Inc. Ltd.
Accel Graphics
Actix
Appian Graphics
Models:
3Dfx Interactive, Inc. Banshee
3dfx Interactive, Inc. Voodoo3
Have Disk...
< Back
Next >
Cancel

Step 6. Type the path to the Win2000 VGA drivers on your driver CD, and press the “OK” button.



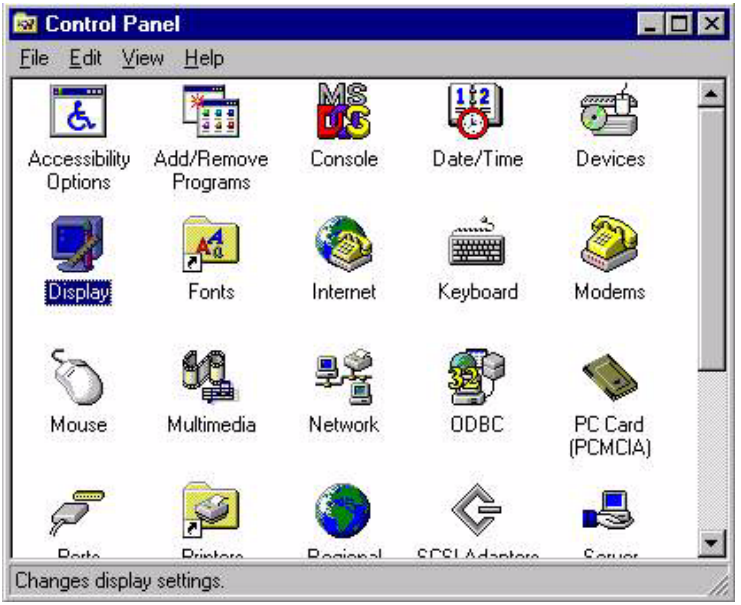
Step 7. Press “Finish” to reboot.

Upgrade Device Driver Wizard
Completing the Upgrade Device Driver Wizard
S3 Graphics Twister + S3Hotkey
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

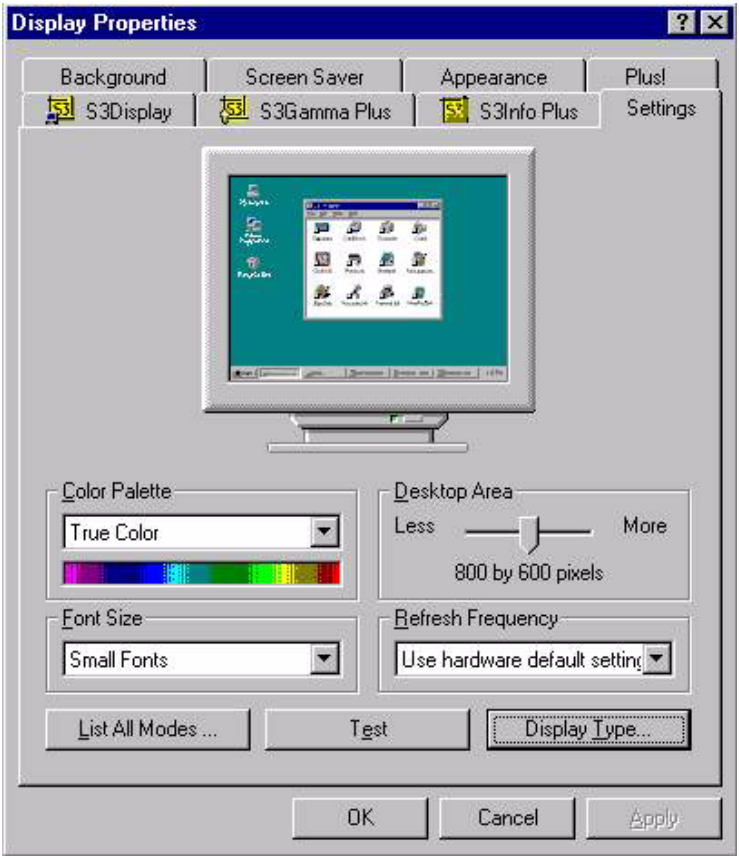
5.2.2 Installation for Windows NT

Note: *Service Pack X (X = 3, 4, 5, 6,...) must be installed first, before you install the Windows NT VGA driver.*

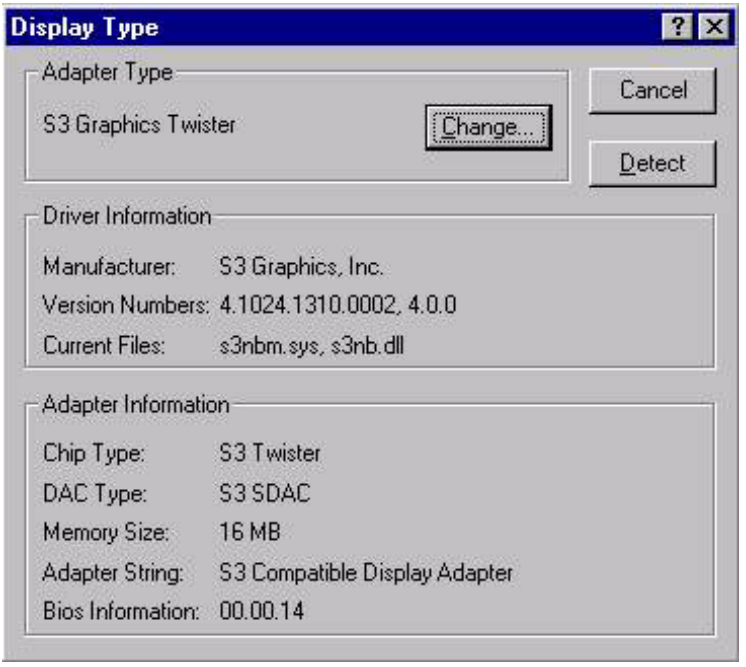
Step 1. Select "Start", "Settings", "Control Panel" and double click the "Display" icon.



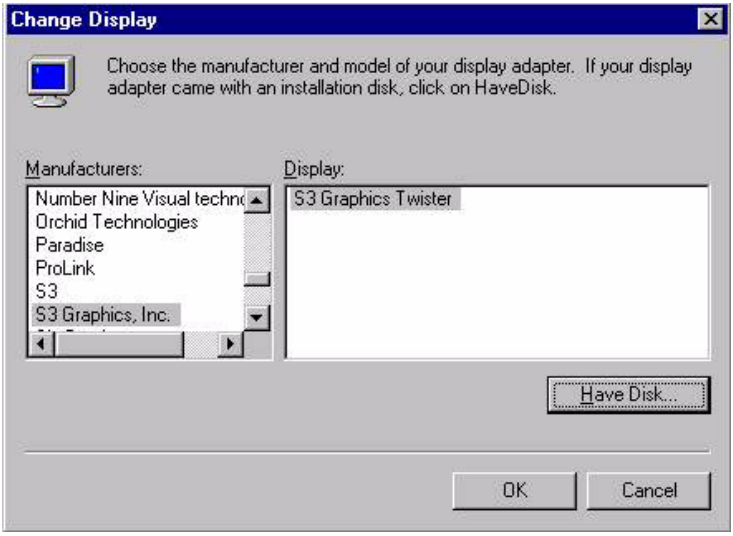
Step 2. Choose the "Settings" tab, and press the "Display Type" button.



Step 3. Press the "Change..." button.



Step 4. Click the "Have Disk..." button.

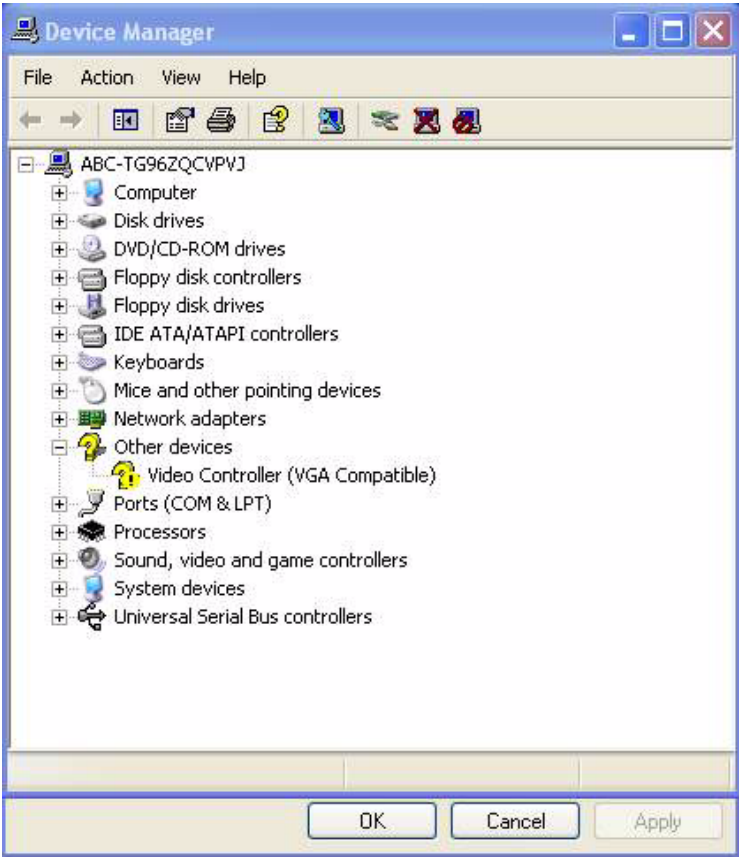


Step 5. Type the path to the WinNT VGA drivers on your installation CD, and press the “OK” button.

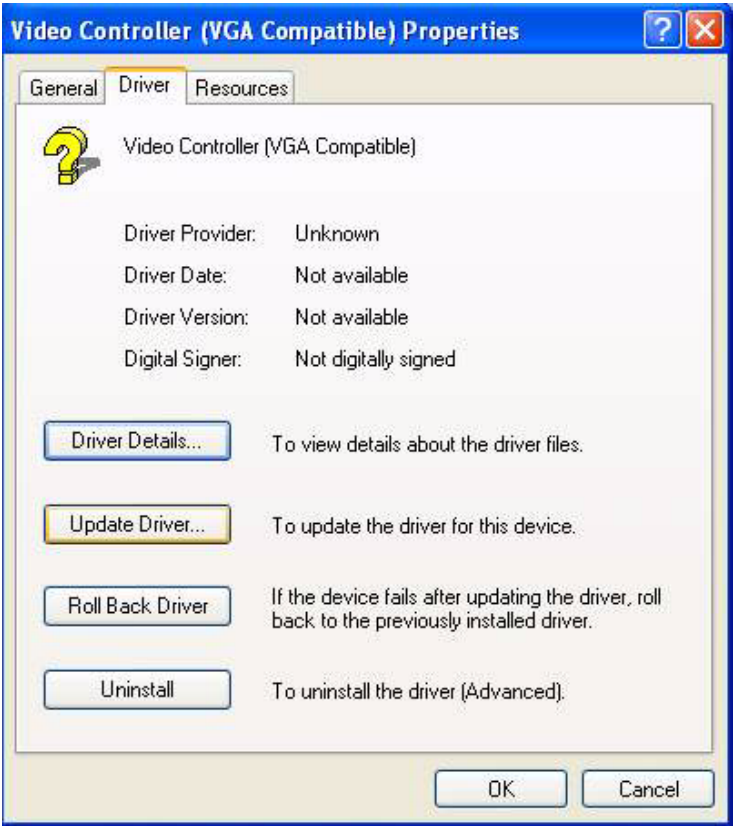
Step 6. Press “Finish” to complete the driver installation.

5.2.3 Installation for Windows XP

Step 1. Select “Start,” “Settings,””System,” “Control Panel” and double click the “system” icon. Choose “Hardware” and “Device Manager;” press “OK” button. Right click “Video Controller (VGA Compatible,” and select “Properties.”



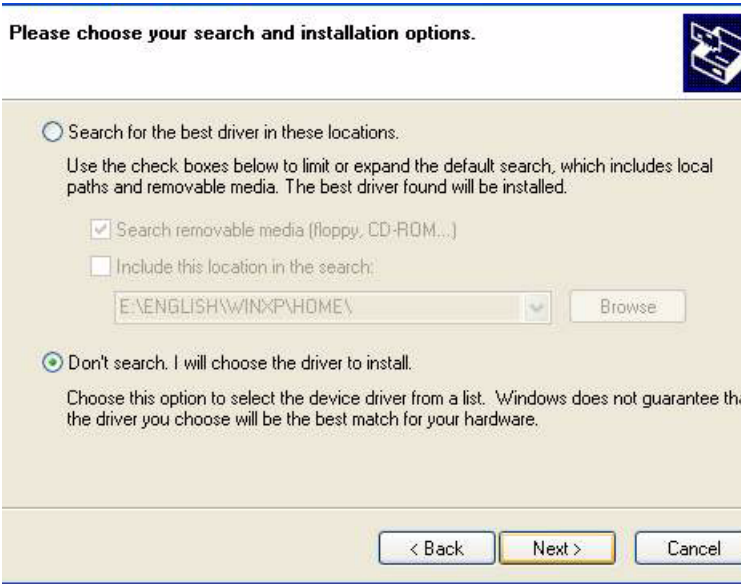
Step 2. Click “Update Driver.”



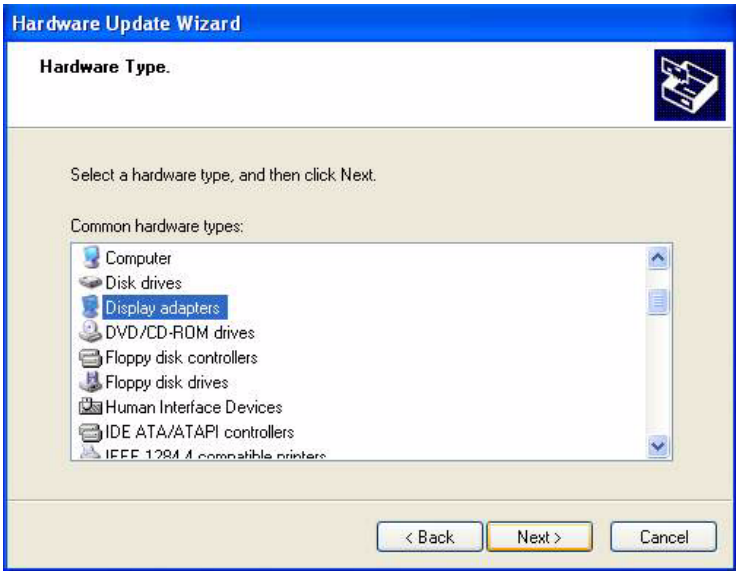
Step 3. The Hardware Update Wizard should start. Click the “Install from a list....” radio button; mash “Next.”

Hardware Update Wizard
Welcome to the Hardware Update Wizard
This wizard helps you install software for:
Video Controller (VGA Compatible)
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Step 4. Select “Don’t search. I will choose....” Depress “Next.”


Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
E:\ENGLISH\WINXP\HOME\
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee th
the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

Step 5. Select “Display adapters,” then press “Next.”



Step 6. Establish the path to the XP VGA drivers, then press “OK.”

Step 7. Select “S3 Graphics Twister + S3 Hotkey,” and click “Next.”

Hardware Update Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Show compatible hardware
Model
S3 Graphics Twister + S3Hotkey
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

Step 8. Press “Finish” to reboot.

Hardware Update Wizard
Completing the Hardware Update Wizard
The wizard has finished installing the software for:
S3 Graphics Twister + S3Hotkey
The hardware you installed will not work until you restart your computer.
Click Finish to close the wizard.
< Back
Finish
Cancel

5.3 Further Information

For further information about the AGP/VGA installation in your PCA-6772, including driver updates, troubleshooting guides and FAQ lists, visit the following web resources:

VIA website: www.via.com.tw

Advantech websites: www.advantech.com
www.advantech.com.tw

CHAPTER 6

Audio Setup

The PCA-6772 is equipped with an audio interface that records and plays back CD-quality audio. This chapter provides instructions for installing the software drivers included on the audio driver diskettes.

Chapter 6 Audio Setup

6.1 Introduction

The PCA-6772's on-board audio interface provides high-quality stereo sound and FM music synthesis (ESFM) by using the VIA VT82C686 audio controller from VIA. The audio interface can record, compress, and play back voice, sound, and music with built-in mixer control.

The PCA-6772 on board audio interface also supports the Plug and Play (PnP) standard and provides PnP configuration for the audio, FM, and MPU-104 logical devices. It is compatible with Sound Blaster™; Sound Blaster Pro™ version 3.01, voice and music functions. The ESFM synthesizer is register compatible with the OPL3 and has extended capabilities.

6.2 DOS utilities

6.2.1 VIA Sound Blaster Pro compatible set up program

Please “Enable” the Sound Blaster setting in the BIOS before playing Sound Blaster compatible DOS games. To enable the settings in the BIOS:

INTEGRATED PERIPHERALS -> Onboard Legacy Audio

-> Sound Blaster (Disable -> Enable)

Chipset Feature Setup ->On Chip Sound (Disable-> Enable)

The Sound Blaster Pro compatible sound chip is integrated into the VIA PCI audio device in order to have Sound Blaster compatible DOS games running on the system.

If you want to play Sound Blaster compatible DOS games under the real mode MS-DOS or the “Restart in MS-DOS” from Win9x, then you should run this setup program to enable OPL3 MIDI music. Otherwise, the sound effects will be heard, but not the music. If you want to play legacy games in a Windows DOS Box, then you don't need to install this program.

6.2.2 VIA Sound Blaster Installation

Follow these steps to enable the Sound Blaster Pro compatible functions.

Step 1. Enable the Sound Blaster first on the BIOS setting of the "Onboard Legacy Audio" and "On-Chip Sound".

Step 2. Run the "Install.exe".
A:> INSTALL

Step 3. The program will copy the relative files into the directory which you assign. Next, the program will insert the following new line into the AUTOEXEC.BAT and copy the original AUTOEXEC.BAT to AUTOEXEC.VIA.
C: \VIAUDIO\VIAUDIO.COM

Step 4. Reboot the system when the installation is complete.

Step 5. Uninstall by deleting the new line from the AUTOEXEC.BAT.

6.3 Driver installation

6.3.1 Before you begin

Please read the instructions in this chapter carefully before you attempt installation. The audio drivers for the PCA-6772 board are located on the audio driver CD. Run the supplied SETUP program to install the drivers; don't copy the files manually.

Note: The files on the software installation diskette are compressed. Do not attempt to install the drivers by copying the files manually. You must use the supplied SETUP program to install the drivers.

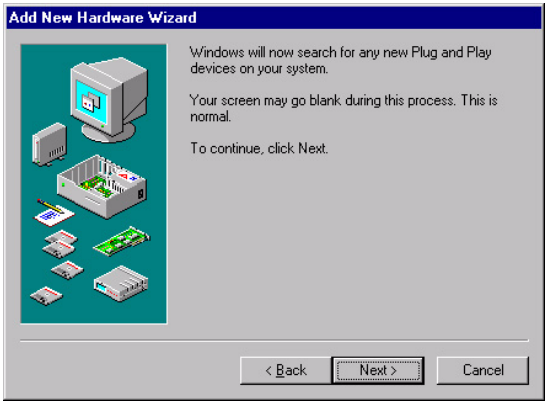
6.3.2 Windows 95/98 drivers

Step 1. Click "Start" and select "Settings". Click "Control Panel" and double-click "Add New Hardware".

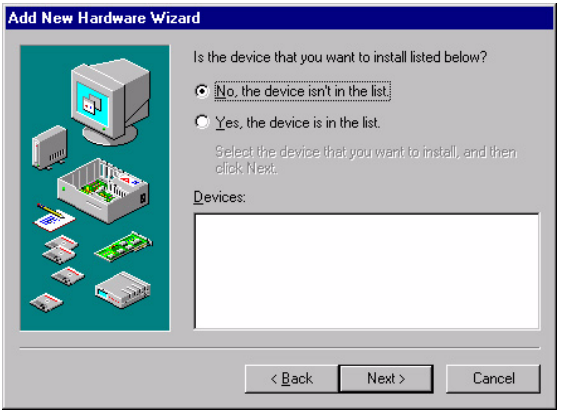
Step 2. In the Add New Hardware Wizard window, click "Next".

Add New Hardware Wizard
This wizard installs the software for a new hardware device.
Before continuing, close any open programs.
To begin installing the software for your new device, click Next.
< Back
Next >
Cancel

Step 3. In the following Add New Hardware Wizard window, click "Next" for Windows to search for Plug and Play devices.


Add New Hardware Wizard
Windows will now search for any new Plug and Play devices on your system.
Your screen may go blank during this process. This is normal.
To continue, click Next.
< Back
Next >
Cancel

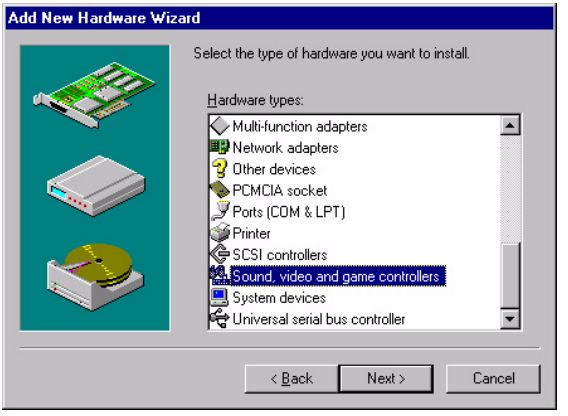
Step 4. In the following Add New Hardware Wizard window, select “No, the device isn't in the list.”and click “Next”.


Add New Hardware Wizard
Is the device that you want to install listed below?
No, the device isn't in the list.
Yes, the device is in the list.
Select the device that you want to install, and then click Next.
Devices:
< Back
Next >
Cancel

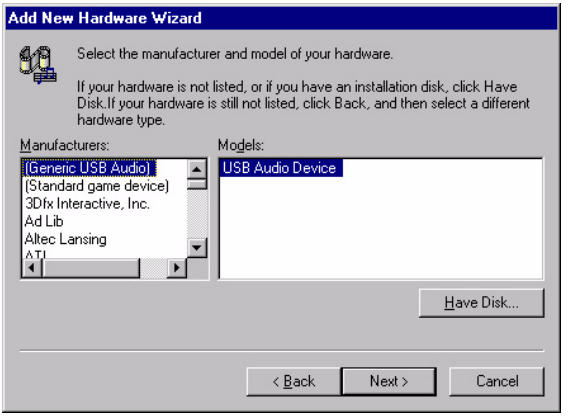
Step 5. In the following Add New Hardware Wizard window, select "No, I want to select..." and click "Next".

Add New Hardware Wizard
Windows can now search for hardware that is not Plug and Play compatible, or you can select your hardware from a list.
When Windows detects new hardware, it automatically determines the current settings for the device and installs the correct driver. For this reason it is strongly recommended that you have Windows search for your new hardware.
Do you want Windows to search for your new hardware?
Yes (Recommended)
No, I want to select the hardware from a list.
< Back
Next >
Cancel

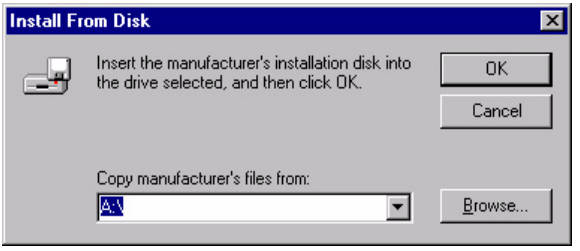
Step 6. In the following Add New Hardware Wizard window, select "Sound, video and game controllers" and click "Next".



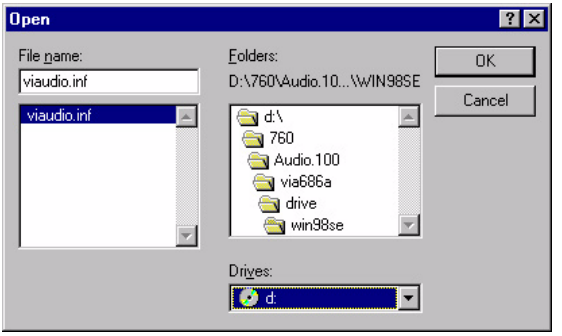
Step 7. In the following Add New Hardware Wizard window, click "Have Disk...".


Add New Hardware Wizard
Select the manufacturer and model of your hardware.
If your hardware is not listed, or if you have an installation disk, click Have Disk.If your hardware is still not listed, click Back, and then select a different hardware type.
Manufacturers:
Models:
(Generic USB Audio)
(Standard game device)
3Dfx Interactive, Inc.
Ad Lib
Altec Lansing
USB Audio Device
Have Disk...
< Back
Next >
Cancel

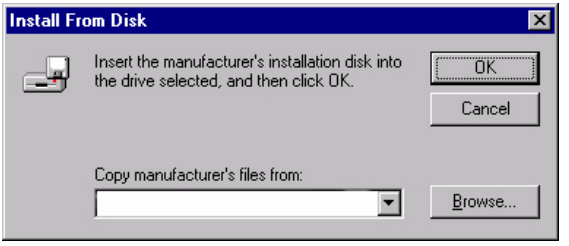
Step 8. In the Install From Disk window, click "Browse".



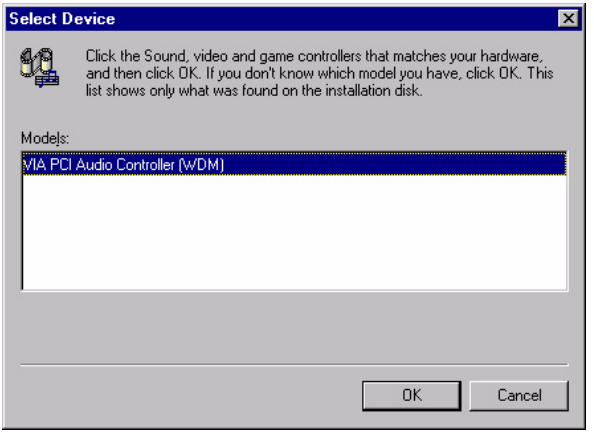
Step 9. In the Open window, select
"E:\SlotPC\6772\Audio\98se_Me_2k_xp\WIN95_98.



Step 10. In the Install From Disk window, click" OK".



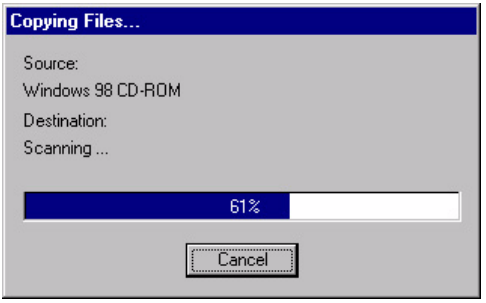
Step 11. In the Select Device window, select "VIA PCI Audio Controller (WDM)" and click "OK".


Select Device
Click the Sound, video and game controllers that matches your hardware, and then click OK. If you don't know which model you have, click OK. This list shows only what was found on the installation disk.
Models:
VIA PCI Audio Controller (WDM)
OK
Cancel

Step 12. In the Add New Hardware Wizard window, click "Next".

Add New Hardware Wizard
The hardware you are installing is Plug and Play compatible.
To install the software necessary to support your new hardware, click Next.
< Back
Next >
Cancel

Step 13. The Copying Files... window will appear.

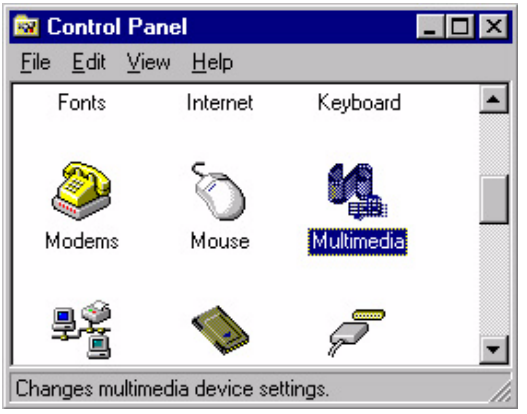


Step 14. In the Add New Hardware Wizard window, click "Finish". Then reboot the system.

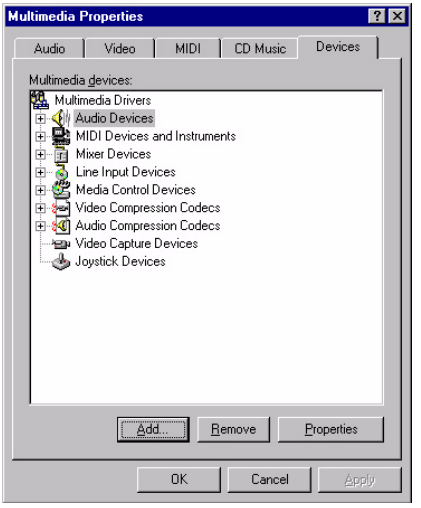
Add New Hardware Wizard
Windows has finished installing the software necessary to support your new hardware.
< Back
Finish
Cancel

6.3.3 Windows NT drivers

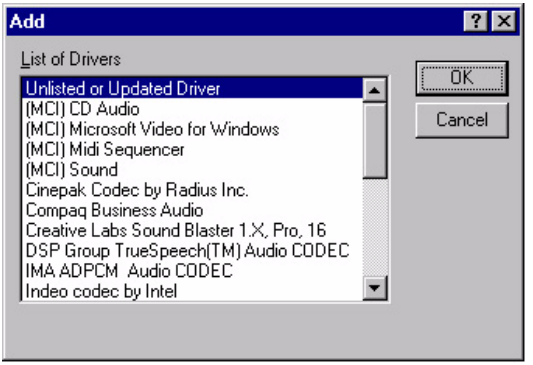
Step 1. Click "Start" and select "Settings". Click "Control Panel" and double-click "Multimedia".



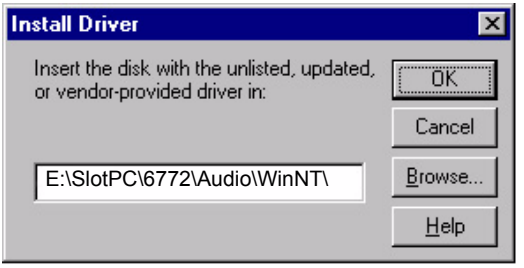
Step 2. In the Multimedia Properties window, select the "Devices" tab. Then select the "Audio Devices" item, and click "Add...".



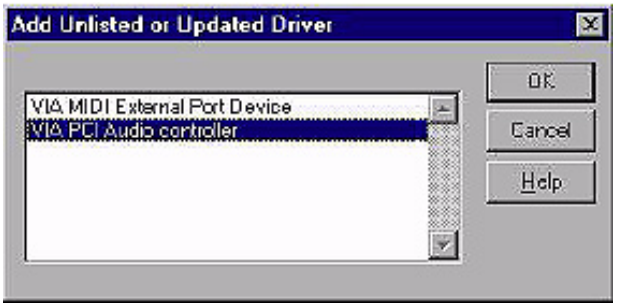
Step 3. In the Add window, select the “Unlisted...” item and click “OK”.



Step 4. When the Install Driver window appears, insert the utility disc into the CD-ROM drive. Type: E:\SlotPC\6772\Audio\WinNT\ Then click “OK”.



Step 5. In the Add Unlisted or Updated Driver window, select the "VIA PCI Audio controller" item. Then click "OK".

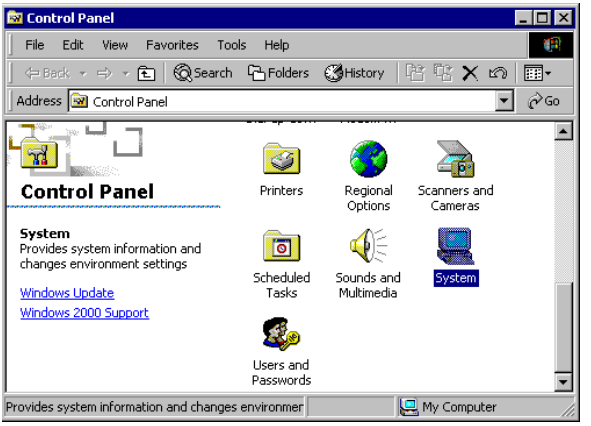


Step 6. In the System Setting Change window, click “Restart Now”.

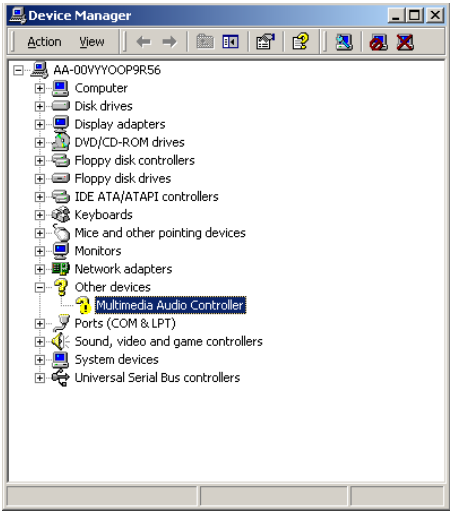
System Setting Change
The VIA PCI Audio controller driver has been added.
For the new driver to take effect, you must quit and
restart Windows NT.
Don't Restart Now
Restart Now

6.3.4 Windows 2000 Drivers

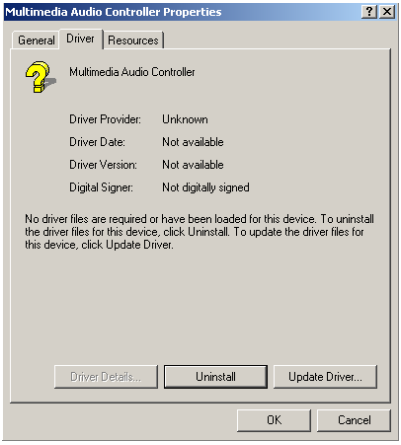
Step 1. Select “System”, “Setting”, “Control Panel” and double click “system” icon.



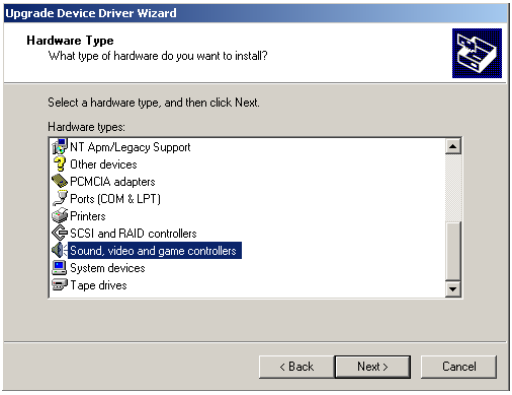
Step 2. Choose “Multimedia Audio Controller” button.



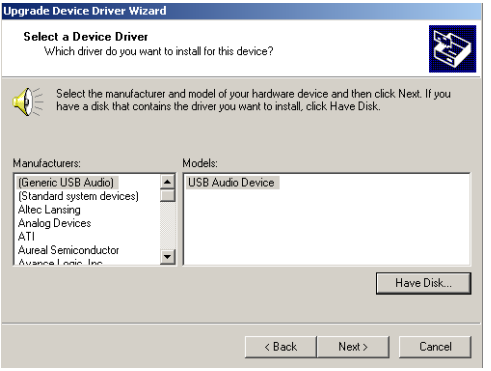
Step 3. Choose “Driver button, press “Update Driver” button.


Multimedia Audio Controller Properties
General
Driver
Resources
Multimedia Audio Controller
Driver Provider: Unknown
Driver Date: Not available
Driver Version: Not available
Digital Signer: Not digitally signed
No driver files are required or have been loaded for this device. To uninstall the driver files for this device, click Uninstall. To update the driver files for this device, click Update Driver.
Driver Details...
Uninstall
Update Driver...
OK
Cancel

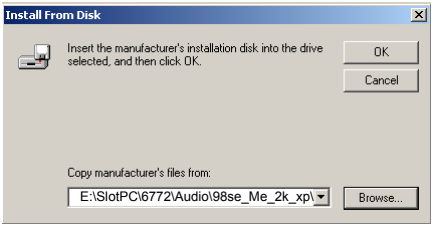
Step 4. Choose “Sound, video and game controllers”, press “Next”



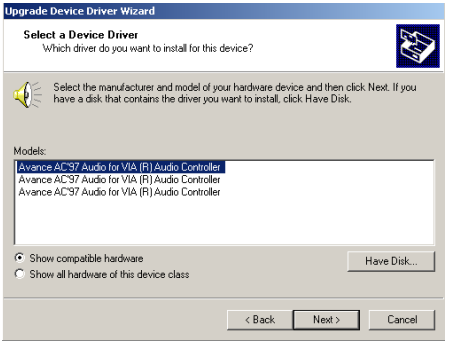
Step 5. Click the “Have Disk...” button


Upgrade Device Driver Wizard
Select a Device Driver
Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturers:
Models:
(Generic USB Audio)
(Standard system devices)
Altec Lansing
Analog Devices
ATI
Aureal Semiconductor
USB Audio Device
Have Disk...
< Back
Next >
Cancel

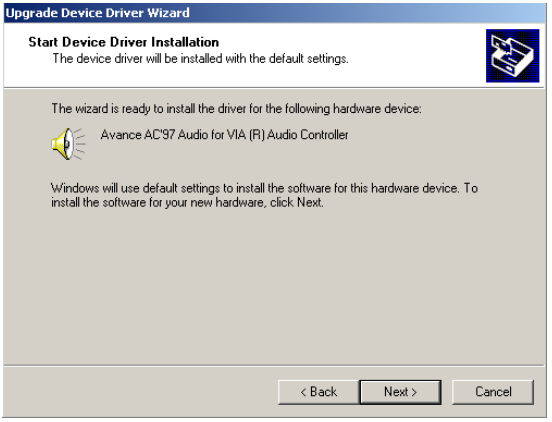
Step 6. Type the path E:\SlotPC\6772\Audio\98se_Me_2k_xp\Win2000 press the “OK” button.



Step 7. Click “Have Disk” button


Upgrade Device Driver Wizard
Select a Device Driver
Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Models:
Avance AC'97 Audio for VIA (R) Audio Controller
Avance AC'97 Audio for VIA (R) Audio Controller
Avance AC'97 Audio for VIA (R) Audio Controller
Show compatible hardware
Show all hardware of this device class
Have Disk...
< Back
Next >
Cancel

Step 8. Press “Next” button


Upgrade Device Driver Wizard
Start Device Driver Installation
The device driver will be installed with the default settings.
The wizard is ready to install the driver for the following hardware device:
Avance AC'97 Audio for VIA (R) Audio Controller
Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next.
< Back
Next >
Cancel

Step 9. Press “Finish” to reboot

Upgrade Device Driver Wizard
Completing the Upgrade Device Driver Wizard
Avance AC'97 Audio for VIA (R) Audio Controller
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

CHAPTER 7

PCI Bus Ethernet Interface

This chapter provides information on Ethernet configuration.

- Introduction
- Installation of Ethernet drivers for Windows 2000/NT
- Further information

Chapter 7 PCI Bus Ethernet Interface

7.1 Introduction

The PCA-6772 is equipped with a high performance 32-bit Ethernet chipset which is fully compliant with IEEE 802.3 100 Mbps CSMA/CD standards. It is supported by major network operating systems. It is also both 100Base-T and 10Base-T compatible. The medium type can be configured via the RSET8139.exe program included on the utility disk.

The Ethernet port provides three standard RJ-45 jacks via an optional wiring kit. The network boot feature can be utilized by incorporating the boot ROM image files for the appropriate network operating system. The boot ROM BIOS files are combined with system BIOS, which can be enabled/disabled in the BIOS setup.

7.2 Installation of Ethernet driver

Before installing the Ethernet driver, note the procedures below. You must know which operating system you are using in your PCA-6772 Series, and then refer to the corresponding installation flow chart. Then just follow the steps described in the flow chart. You will quickly and successfully complete the installation, even if you are not familiar with instructions for MS-DOS or Windows.

Note: The windows illustrations in this chapter are examples only. Follow the steps and pay attention to the instructions which appear on your screen.

7.2.1 Installation for MS-DOS and Windows 3.1

If you want to set up your Ethernet connection under the MS-DOS or Windows 3.1 environment, you should first check your server system model. For example, MS-NT, IBM-LAN server, and so on.

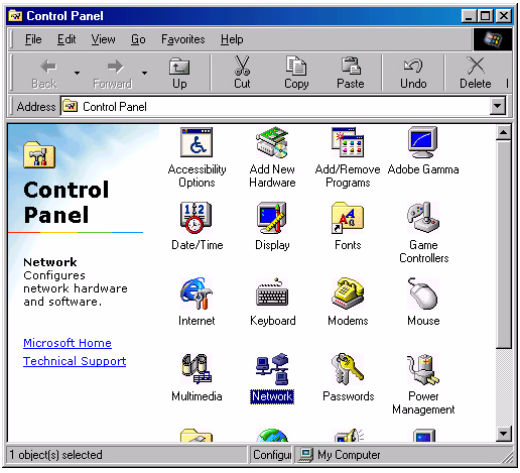
Then choose the correct driver to install in your SlotPC.

The installation procedures for various servers can be found on the supplied CD-ROM, the correct path being:

E:\SlotPC\6772\LAN\8139C\wfw311

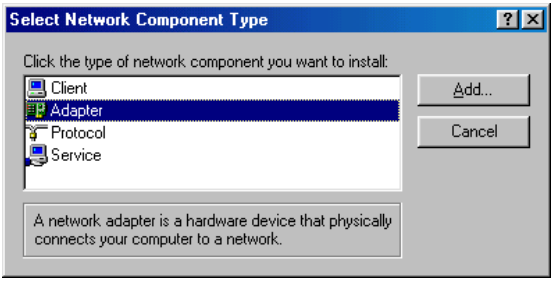
7.2.2 Installation for Windows 98

Step 1. a. Select "Start", "Settings". "Control Panel".
b. Double click "Network".

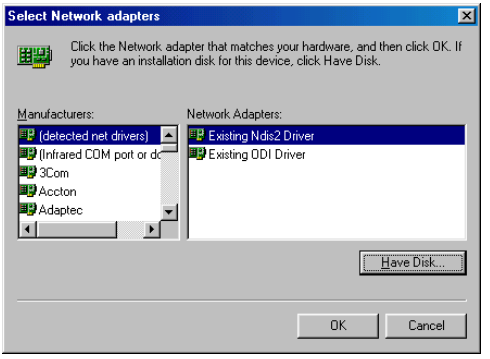


Step 2. a. Click "Add" and prepare to install network functions.

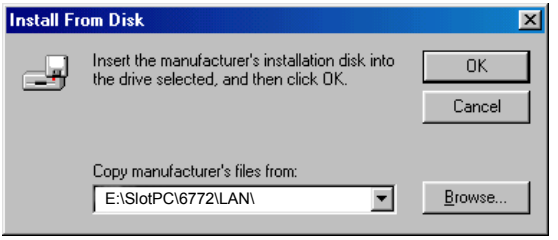
Step 3. a. Select the "Adapter" item to add the Ethernet card.



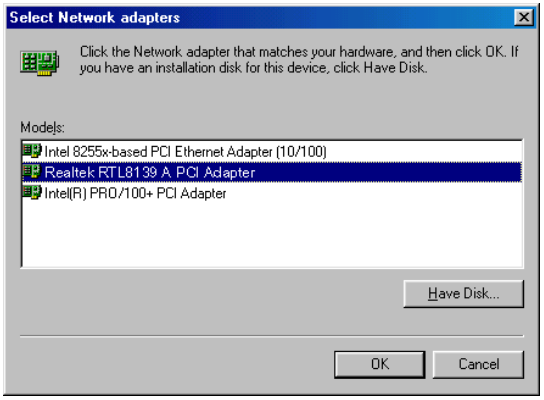
Step 4. a. Click "Have Disk" to install the driver.



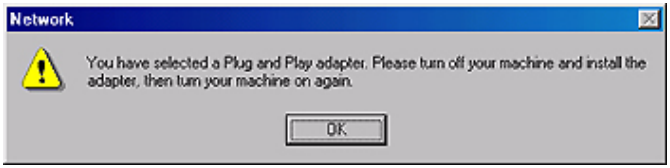
Step 5. a. Insert the CD into the D: drive
b. Fill in "E:\SlotPC\6772\LAN\"
c. Click "OK"



Step 6. a. Choose the "Realtek RTL8139(A/B/C/8130) PCI Fast Ethernet" item.
b. Click "OK".

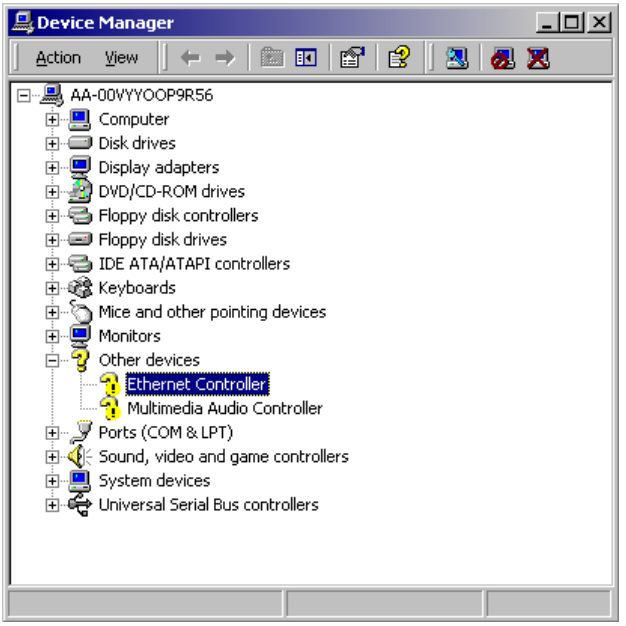

Select Network adapters
Click the Network adapter that matches your hardware, and then click OK. If you have an installation disk for this device, click Have Disk.
Models:
Intel 8255x-based PCI Ethernet Adapter (10/100)
Realtek RTL8139 A PCI Adapter
Intel(R) PRO/100+ PCI Adapter
Have Disk...
OK
Cancel

Step 7. a. Make sure the configurations of relative items are set correctly.
b. Click "OK" to reboot.

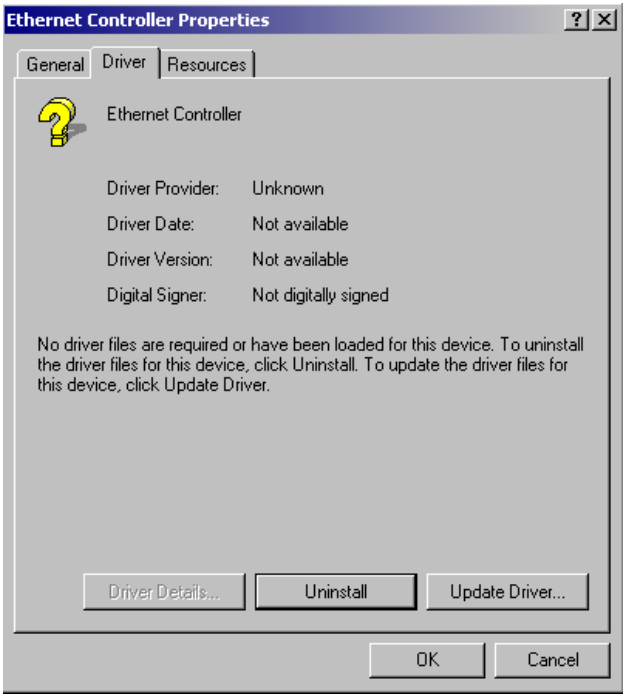

Network
You have selected a Plug and Play adapter. Please turn off your machine and install the adapter, then turn your machine on again.
OK

7.2.3 Installation for Windows 2000

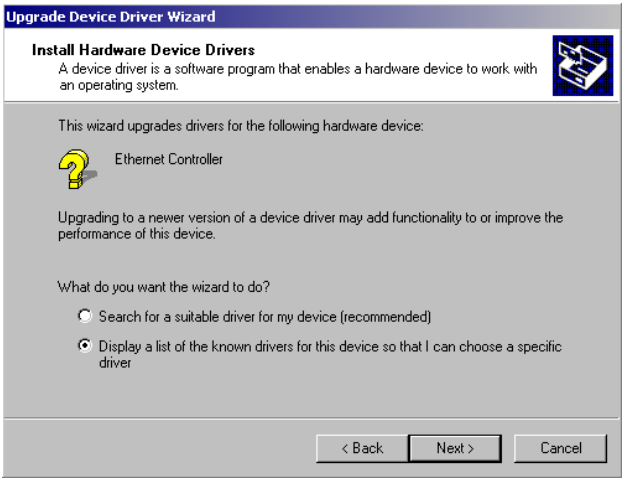
Step 1. Open Device Manager,



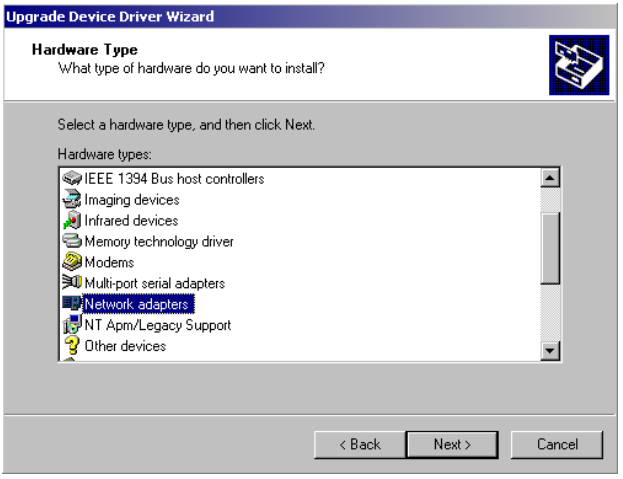
Step 2.


Ethernet Controller Properties
General
Driver
Resources
Ethernet Controller
Driver Provider:
Unknown
Driver Date:
Not available
Driver Version:
Not available
Digital Signer:
Not digitally signed
No driver files are required or have been loaded for this device. To uninstall the driver files for this device, click Uninstall. To update the driver files for this device, click Update Driver.
Driver Details...
Uninstall
Update Driver...
OK
Cancel

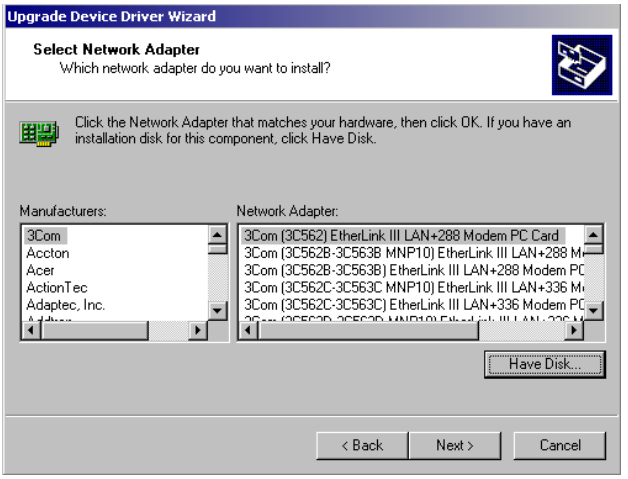
Step 3.


Upgrade Device Driver Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard upgrades drivers for the following hardware device:
Ethernet Controller
Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

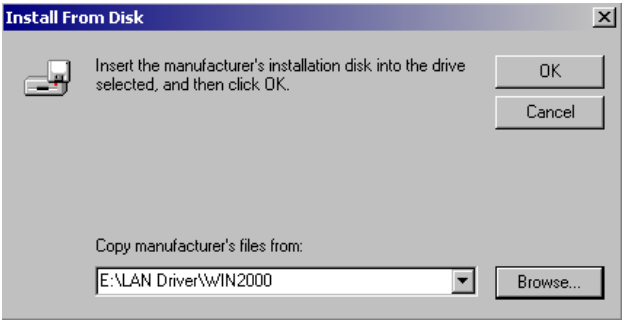
Step 4.


Upgrade Device Driver Wizard
Hardware Type
What type of hardware do you want to install?
Select a hardware type, and then click Next.
Hardware types:
IEEE 1394 Bus host controllers
Imaging devices
Infrared devices
Memory technology driver
Modems
Multi-port serial adapters
Network adapters
NT Apm/Legacy Support
Other devices
< Back
Next >
Cancel

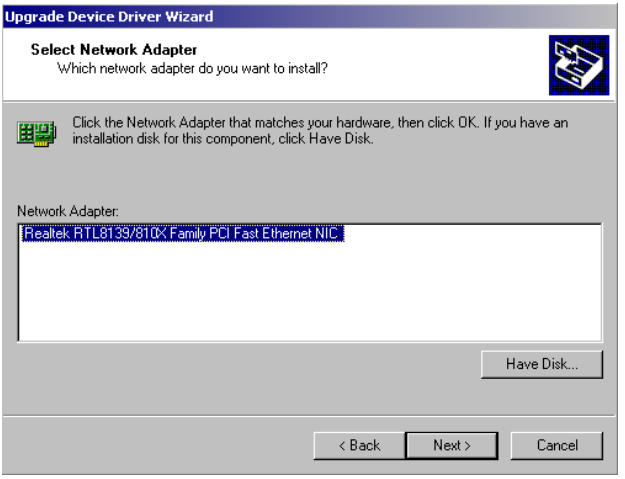
Step 5.


Upgrade Device Driver Wizard
Select Network Adapter
Which network adapter do you want to install?
Click the Network Adapter that matches your hardware, then click OK. If you have an installation disk for this component, click Have Disk.
Manufacturers:
Network Adapter:
3Com
Accton
Acer
ActionTec
Adaptec, Inc.
3Com (3C562) EtherLink III LAN+288 Modem PC Card
3Com (3C562B-3C563B MNP10) EtherLink III LAN+288 M
3Com (3C562B-3C563B) EtherLink III LAN+288 Modem PC
3Com (3C562C-3C563C MNP10) EtherLink III LAN+336 M
3Com (3C562C-3C563C) EtherLink III LAN+336 Modem PC
Have Disk...
< Back
Next >
Cancel

Step 6.


Install From Disk
Insert the manufacturer's installation disk into the drive selected, and then click OK.
OK
Cancel
Copy manufacturer's files from:
E:\LAN Driver\WIN2000
Browse...

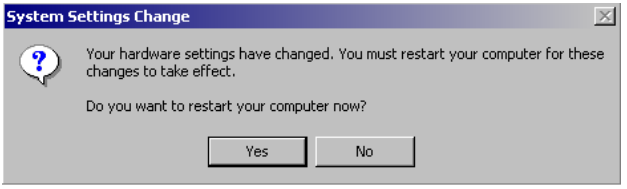
Step 7.


Upgrade Device Driver Wizard
Select Network Adapter
Which network adapter do you want to install?
Click the Network Adapter that matches your hardware, then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
Realtek RTL8139/810X Family PCI Fast Ethernet NIC
Have Disk...
< Back
Next >
Cancel

Step 8.

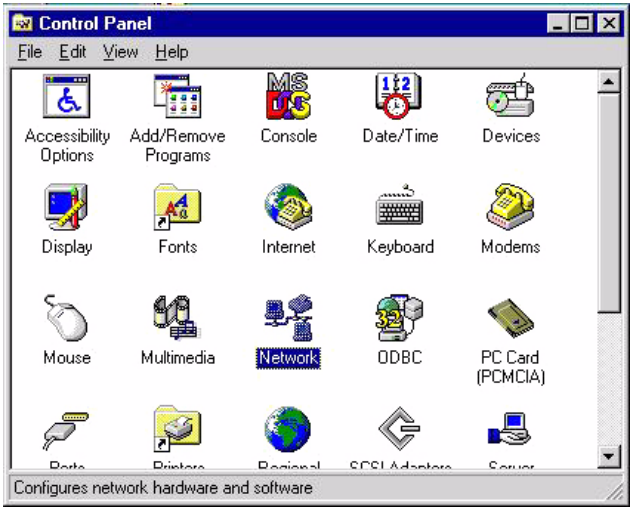
Upgrade Device Driver Wizard
Completing the Upgrade Device Driver Wizard
Realtek RTL8139/810X Family PCI Fast Ethernet NIC
The software for this device is now installed, but may not work correctly.
This device cannot start. (Code 10)
To close this wizard, click Finish.
< Back
Finish
Cancel

Step 9.


System Settings Change
Your hardware settings have changed. You must restart your computer for these changes to take effect.
Do you want to restart your computer now?
Yes
No

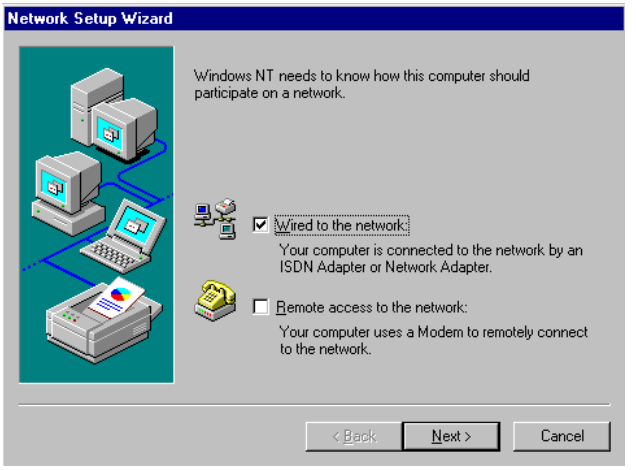
7.2.4 Installation for Windows NT

Step 1. a. Select "Start", "Settings", "Control Panel"
b. Double click "Network"

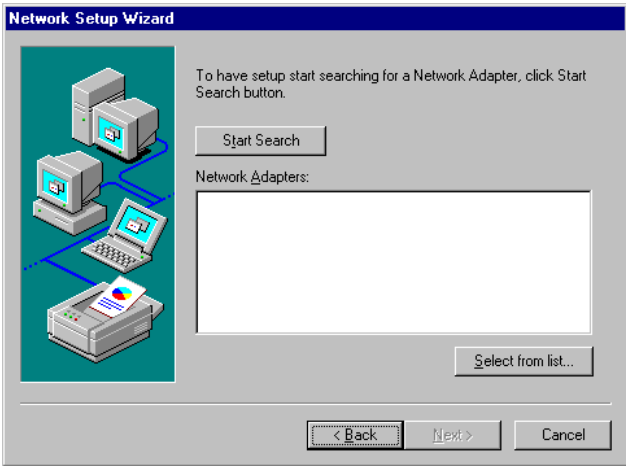


Step 2. a. Choose type of network.

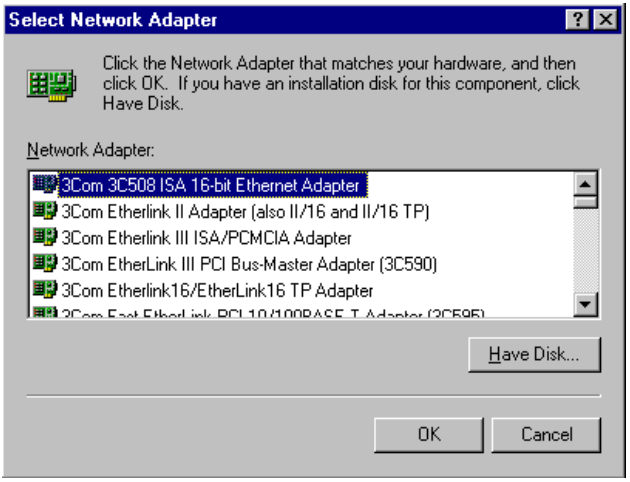
b. Click "Next"


Network Setup Wizard
Windows NT needs to know how this computer should participate on a network.
Wired to the network:
Your computer is connected to the network by an ISDN Adapter or Network Adapter.
Remote access to the network:
Your computer uses a Modem to remotely connect to the network.
< Back
Next >
Cancel

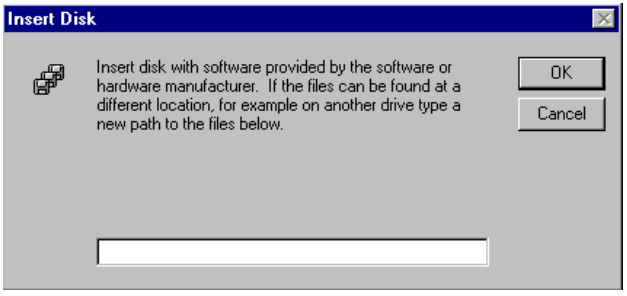
Step 3. a. Click "Select from list..."


Network Setup Wizard
To have setup start searching for a Network Adapter, click Start Search button.
Start Search
Network Adapters:
Select from list...
< Back
Next >
Cancel

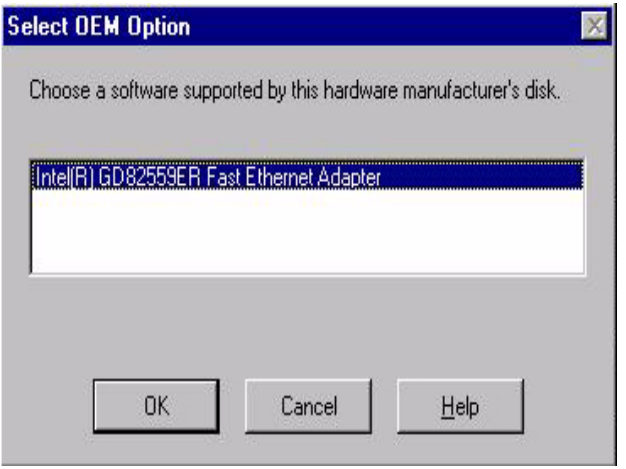
Step 4. Click “Have Disk.”


Select Network Adapter
Click the Network Adapter that matches your hardware, and then click OK. If you have an installation disk for this component, click Have Disk.
Network Adapter:
3Com 3C508 ISA 16-bit Ethernet Adapter
3Com Etherlink II Adapter (also II/16 and II/16 TP)
3Com Etherlink III ISA/PCMCIA Adapter
3Com EtherLink III PCI Bus-Master Adapter (3C590)
3Com Etherlink16/EtherLink16 TP Adapter
Have Disk...
OK
Cancel

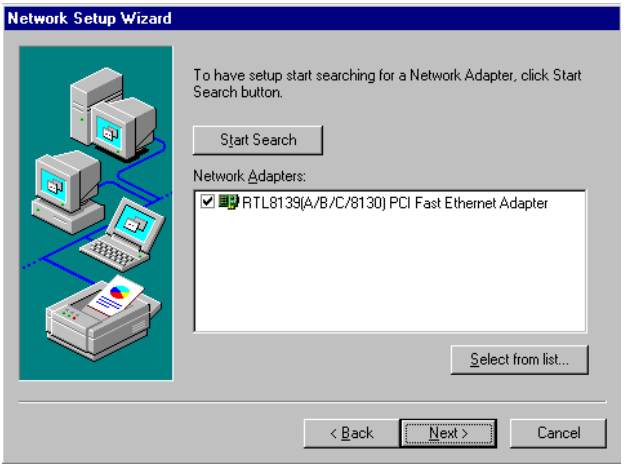
Step 5. a. Insert the Utility CD ROM
b. Fill in the correct path:
E:\SlotPC\6772\LAN\8139C\winnt4
c. Click "OK".


Insert Disk
Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.
OK
Cancel

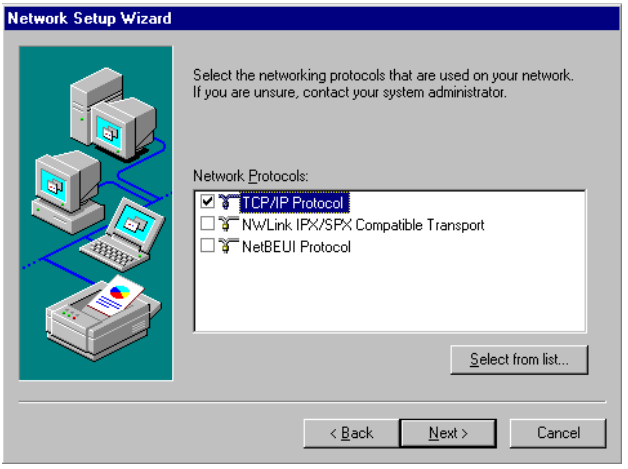
Step 6. Check the highlighted item, and click “OK.”



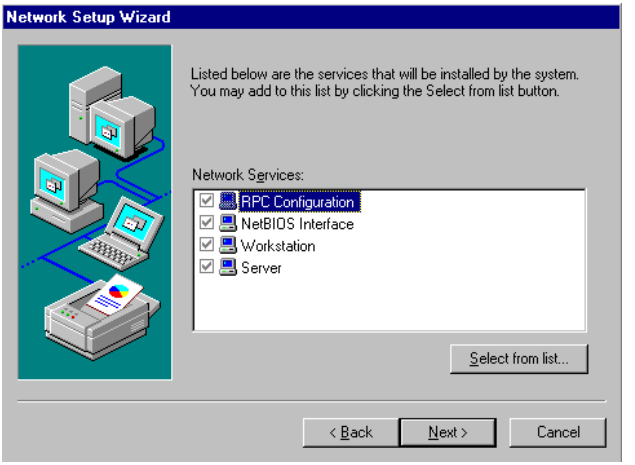
7. Click “Next” to continue setup.


Network Setup Wizard
To have setup start searching for a Network Adapter, click Start Search button.
Start Search
Network Adapters:
RTL8139(A/B/C/8130) PCI Fast Ethernet Adapter
Select from list...
< Back
Next >
Cancel

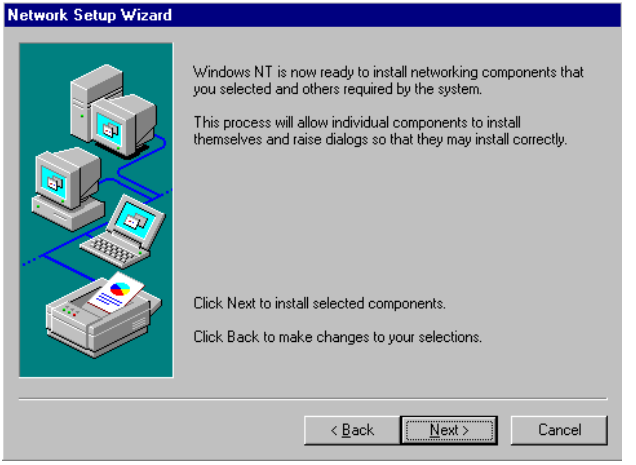
Step 8. Choose the networking protocols, then click "Next"



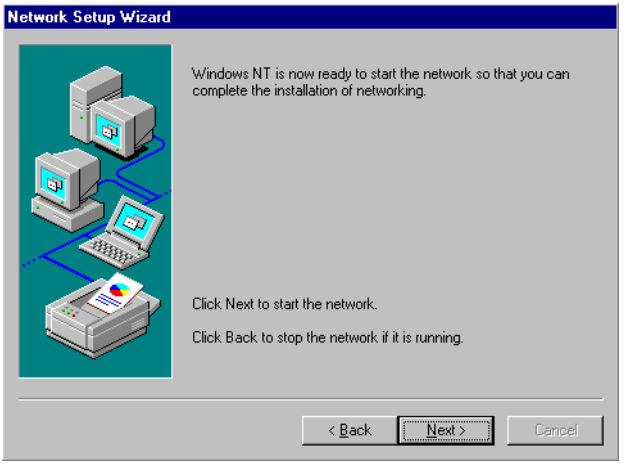
Step 9. Select the correct Network Services then click "Next"


Network Setup Wizard
Listed below are the services that will be installed by the system.
You may add to this list by clicking the Select from list button.
Network Services:
RPC Configuration
NetBIOS Interface
Workstation
Server
Select from list...
< Back
Next >
Cancel

Step 10. Click “Next” to continue setup.


Network Setup Wizard
Windows NT is now ready to install networking components that you selected and others required by the system.
This process will allow individual components to install themselves and raise dialogs so that they may install correctly.
Click Next to install selected components.
Click Back to make changes to your selections.
< Back
Next >
Cancel

11. Click “Next” to start the network.


Network Setup Wizard
Windows NT is now ready to start the network so that you can complete the installation of networking.
Click Next to start the network.
Click Back to stop the network if it is running.
< Back
Next >
Cancel

7.3 Further information

Realtek website:	**www.realtek.com.tw**
Intel website:	**www.intel.com**
Advantech websites:	**www.advantech.com**
	www.advantech.com.tw

Appendix A

Programming the Watchdog Timer

The PCA-6772 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

Appendix A Programming the Watchdog Timer

A.1 Supported Input Timing Modes

In order to program the watchdog timer, you must write a program which writes I/O port address 443 (hex). The output data is a value of time interval. The value range is from 01 (hex) to 3E (hex), and the related time interval is 1 sec. to 62 sec.

Data	Time Interval
01	1 sec.
02	2 sec.
03	3 sec.
04	4 sec.
	.
	.
	.
3E	62 sec.

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 443 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should read I/O port 443 (hex).

The following example shows how you might program the watchdog timer in BASIC:

```
10      REM Watchdog timer example program
20      OUT &H443, data  REM Start and restart the
        watchdog
30      GOSUB 1000  REM Your application task #1
40      OUT &H443, data  REM Reset the timer
50      GOSUB 2000  REM Your application task #2
60      OUT &H443, data  REM Reset the timer
70      X=INP (&H443)  REM Disable the watchdog timer
80      END

1000    REM  Subroutine #1, your application task
        .
        .
        .
1070    RETURN
2000    REM  Subroutine #2, your application task
        .
        .
        .
2090    RETURN
```

Appendix B

Filler

This filler appendix is supplied so that we can use the old Appendices C, D, and E, which are perfectly good, without changing all the references to them that appear in the text. Don't think for a moment that we ***forgot*** Appendix B. We didn't.

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Appendix C

Pin Assignments

This appendix contains information of a detailed or specialized nature. It includes:

- Suspend 5V and ATX PS_ON
- Parallel Port Connector
- Floppy Drive Connector
- Primary IDE Connector
- CRT Display Connector
- USB Connector
- LAN1, LAN2, LAN3, RJ45 connector
- Main Power Connector
- Power & HDD LED
- Flat Panel Connector
- LCD Inverter Backlight Connector
- Panel back-light VR connector
- Audio Connector
- Reset Button Connector
- Keyboard and PS/2 Mouse Connector
- CPU Fan Power Connector
- COM Port Connector
- ATX soft power switch Connector

Appendix C Pin Assignments

C.1 Suspend 5V and ATX PS_ON (CN1)

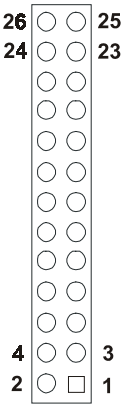
Table C.1: Suspend 5V and ATX PS_ON (CN1)

Pin	Signal
1	Suspend 5V input
2	GND
3	ATX PS_ON signal output

C.2 Parallel Port Connector (CN2)

Table C.2: Parallel Port Connector (CN2)

Pin	Signal	Pin	Signal
1	STB	2	AFD*
3	D0	4	ERR
5	D1	6	INIT*
7	D2	8	SLIN*
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	ACK*	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

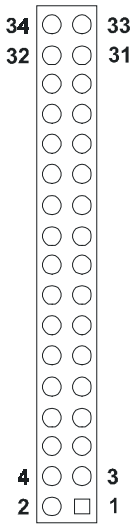


* low active

C.3 Floppy Disk Drive Connector (CN3)

Table C.3: Floppy Disk Drive Connector (CN3)

Pin	Signal	Pin	Signal
1	GND	2	RWC
3	GND	4	NC
5	GND	6	NC
7	GND	8	Index
9	GND	10	MOA
11	GND	12	DSB
13	GND	14	DSA
14	GND	16	MOB
17	GND	18	DIR
19	GND	20	STEP
21	GND	22	WD
23	GND	24	WE
25	GND	26	Track0
27	GND	28	WP
29	GND	30	RDATA
31	GND	32	HEAD
33	GND	34	DSKCHG

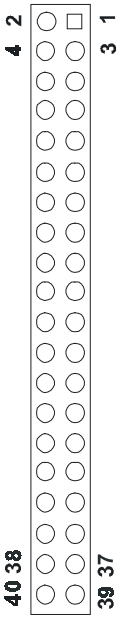


*low active

C.4 IDE Hard Drive Connector (CN4)

Table C.4: IDE HDD connector (CN4)

Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	NC
21	REQ	22	GND
23	IOW	24	GND
25	IOR	26	GND
27	READY	28	Cable Select (Pull-Low)
29	DACK	30	GND
31	IRQ14	32	NC
33	A1	34	Cable check
35	A0	36	A2
37	CS0	38	CS1
39	Active LED	40	GND



C.5 CRT Display Connector (CN5)

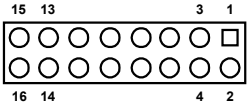


Table C.5: CRT Display Connector (CN5)

Pin	Signal	Pin	Signal
1	Red signal output	2	+5V output
3	Green signal output	4	GND
5	Blue signal output	6	NC
7	NC	8	SPDAT singal I/O
9	GND	10	H-sync signal output
11	GND	12	V-sync signal output
13	GND	14	SPCLK signal I/O
15	GND	16	NC

C.6 USB Connector (CN6)

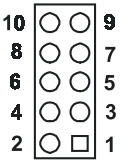


Table C.6: USB Connector (CN6)

Pin	Signal	Pin	Signal
1	+5 V	2	+5 V
3	UV0-	4	UV1-
5	UV0+	6	UV1+
7	USB GND	8	USB GND
9	GND	10	N/C

C.7 LAN1, LAN2, LAN3, RJ45 connector (CN7)

Table C.7: LAN1, LAN2, LAN3, RJ45 connector (CN7)

Pin	Signal	Pin	Signal	Pin	Signal
LAN2-1	TX+	LAN3-1	TX+	LAN1-1	TX+
LAN2-2	TX-	LAN3-2	TX-	LAN1-2	TX-
LAN2-3	RX+	LAN3-3	RX+	LAN1-3	RX+
LAN2-4	N.C.	LAN3-4	N.C.	LAN1-4	N.C.
LAN2-5	N.C.	LAN3-5	N.C.	LAN1-5	N.C.
LAN2-6	RX-	LAN3-6	RX-	LAN1-6	RX-
LAN2-7	N.C.	LAN3-7	N.C.	LAN1-7	N.C.
LAN2-8	N.C.	LAN3-8	N.C.	LAN1-8	N.C.

C.8 Main Power Connector (CN8)

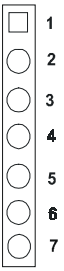


Table C.8: Main Power Connector (CN8)

Pin	Signal
1	+5V input
2	GND
3	GND
4	+12V input
5	NC
6	GND
7	+5V input

C.9 Power & HDD LED Connector(CN9)

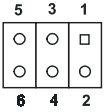


Table C.9: Power & HDD LED Connector (CN9)

Pin	Signal
1	+5V output
2	GND
3	power LED+ (+5V)
4	HDD LED +
5	power LED - (GND)
6	HDD LED -

C.10 Flat Panel Connector (CN12)

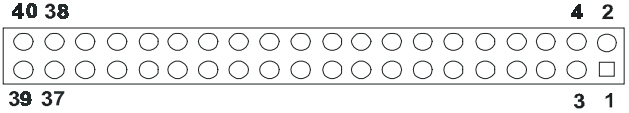


Table C.10: Flat Panel Connector (CN12)

Pin	Signal	Pin	Signal
1	+5V output	2	+5V output
3	GND	4	GND
5	+3.3V output	6	+3.3V output
7	NC	8	GND
9	PD0 signal output	10	PD1 signal output
11	PD2 signal output	12	PD3 signal output
13	PD4 signal output	14	PD5 signal output
15	PD6 signal output	16	PD7 signal output
17	PD8 signal output	18	PD9 signal output
19	PD10 signal output	20	PD11 signal output
21	PD12 signal output	22	PD13 signal output
23	PD14 signal output	24	PD15 signal output
25	PD16 signal output	26	PD17 signal output
27	PD18 signal output	28	PD19 signal output
29	PD20 signal output	30	PD21 signal output
31	PD22 signal output	32	PD23 signal output
33	GND	34	GND
35	FPCLK signal output	36	FPVS signal output
37	FPDE signal output	38	FPHS signal output
39	NC	40	ENVEE signal

Note: The model number of the CN12 socket is DF13A-40DP-1.25V (Hirose Electric Co., Ltd.)

C.11 COM Connector (CN13, CN16)

Table C.11: COM connector (CN 13, CN16)

COM1 connector (CN13)				COM2 connector (CN16)			
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	DCD	6	DSR	1	DCD/ 485TX-	2	DSR
2	RX	7	RTS	3	RX / 485TX+	4	RTS
3	TX	8	CTS	5	TX / 485RX+	6	CTS
4	DTR	9	RI	7	DTR/ 485RX-	8	RI
5	GND			9	GND	10	N.C.

C.12 LCD Inverter Backlight Connector (CN14)

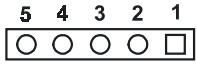


Table C.12: LCD Inverter Backlight Connector (CN14)

Pin	Signal
1	+12V output
2	GND
3	Back-light enable signal output
4	Back-light VBR signal output
5	+5V output

C.13 ATX soft power switch connector (CN15)

Table C.13: ATX soft power switch connector (CN15)

Pin	Signal
1	PS_ON signal input
2	GND

C.14 Panel back-light VR connector (CN17)

Table C.14: Panel back-light VR connector (CN17)

Pin	Signal
1	Connect to VR Pin-1
2	Connect to VR Pin-2
3	Connect to VR Pin-3

C.15 Audio Connector (CN18)

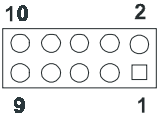


Table C.15: Audio connector (CN18)

Pin	Signal	Pin	Signal
1	+5V Output	2	BITCLK
3	SDATIN	4	GND
5	GND	6	SYNC
7	SDATOUT	8	ACRST
9	+5V Output	10	N.C.

C.16 Reset Button Connector (CN19)

Table C.16: Reset Button Connector (CN19)

Pin	Signal
1	Reset signal input
2	GND

C.17 Keyboard and PS/2 Mouse Connector (CN20)

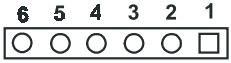


Table C.17: Keyboard and mouse connector (CN20)

Pin	Signal
1	KB CLOCK
2	KB DATA
3	MS CLOCK
4	GND
5	+5V
6	MS DATA

C.18 CPU Fan Power Connector (FAN 1)

Table C.18: IR connector (FAN 1)

Pin	Signal
1	Fan speed detect signal input
2	+12V
3	GND

Appendix D

System Assignments

This appendix contains information of a detailed nature. It includes:

- System I/O ports
- 1st MB memory map
- DMA channel assignments
- Interrupt assignments

Appendix D System Assignments

D.1 System I/O Ports

Table D.1: System I/O ports

Addr. range (Hex)	Device
000-01F	DMA controller
020-021	Interrupt controller 1, master
040-05F	8254 timer
060-06F	8042 (keyboard controller)
070-07F	Real-time clock, non-maskable interrupt (NMI) mask
080-09F	DMA page register
0A0-0BF	Interrupt controller 2
0C0-0DF	DMA controller
0F0	Clear math co-processor
0F1	Reset math co-processor
0F8-0FF	Math co-processor
1F0-1F8	Fixed disk
200-207	Reserved (Game I/O)
278-27F	Parallel printer port 2 (LPT 3)
2E8-2EF	Series port 4
2F8-2FF	Serial port 2
300-31F	Prototype card
360-36F	Reserved
378-37F	Parallel printer port 1 (LPT 2)
380-38F	SDLC, bisynchronous 2
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome display and printer adapter (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/graphics monitor adapter
3E8-3EF	Series port 3
3F0-3F7	Diskette controller
3F8-3FF	Serial port 1

* PNP audio I/O map range from 220 ~ 250H (16 bytes)
  MPU-401 select from 300 ~ 330H (2 bytes)

D.2 1st MB memory map

Table D.2: 1st MB memory map	
Addr. range (Hex)	**Device**
F0000h - FFFFFh	System ROM
*CC000h - EFFFFh	Unused (reserved for Ethernet ROM)
C0000h - CBFFFh	Expansion ROM (for VGA BIOS)
B8000h - BFFFFh	CGA/EGA/VGA text
B0000h - B7FFFh	Unused
A0000h - AFFFFh	EGA/VGA graphics
00000h - 9FFFFh	Base memory

* If Ethernet boot ROM is disabled (Ethernet ROM occupies about 16 KB)

* E0000 - EFFFF is reserved for BIOS POST

D.3 DMA channel assignments

Table D.3: DMA channel assignments	
Channel	**Function**
0	Available
1	Available (audio)
2	Floppy disk (8-bit transfer)
3	Available (parallel port)
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

* Audio DMA select 1, 3, or 5

** Parallel port DMA select 1 (LPT2) or 3 (LPT1)

D.4 Interrupt assignments

Table D.4: Interrupt assignments

Interrupt#	Interrupt source
IRQ 0	Interval timer
IRQ 1	Keyboard
IRQ 2	Interrupt from controller 2 (cascade)
IRQ 3	COM2
IRQ 4	COM1
IRQ 5	COM4
IRQ 6	FDD
IRQ 7	LPT1
IRQ 8	RTC
IRQ 9	Reserved (audio)
IRQ 10	COM3
IRQ 11	Reserved for watchdog timer
IRQ 12	PS/2 mouse
IRQ 13	INT from co-processor
IRQ 14	Primary IDE
IRQ 15	Secondary IDE for CFC

* Ethernet interface IRQ select: 9, 11, 15
* PNP audio IRQ select: 9, 11, 15
* PNP USB IRQ select: 9, 11, 15
* PNP ACPI IRQ select: 9, 11, 15

Appendix E

Optional Extras for the PCA-6772

E.1 ATX Power Control Cable

part no.: 1703200100

E.2 Optional Audio module

part no.: PCM-231A-00A1: Audio module with Line-in,Line-out,mic